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ADDRESSES.

THE ETHICS OF THE MEDICAL PROFESSION.

Abstract of an Address to the Kentucky State Medical Society at the Harrodsburg Opera House, June 18, 1895.

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Ethics is the written code of rules of right conduct for societies, professions, and all bodies of people having a common interest in the advancement of themselves in their individual relations to each other, and of the growth and advancement of the class to which they belong. Politics has for its main object the betterment of the forms of government; and political societies, professions and systems grow in importance as nations or states are made up of people willing to mold their personal conduct to a harmonious general standard in respect to each other's rights as defined by law.

Ethics must be construed to mean the right conduct of people toward each other in their associate relations; and so the ethics of a professional class must define the right conduct of individual members of that class, in the growth and advancement of the whole body. The ethics of the medical profession must be preserved or we shall have no advancement; as, without the written code, we could have no standard of correct deportment, and no basis of comparative improvement upon primitive forms. Virtue is the unselfish conduct of a member of society in the interest of the social circle or class to which the individual belongs. Virtue is, therefore a prime ethical feature of all intellectual associations of men.

A high sense of duty flows naturally from the cultivated exercise of the power of reason. Ethics must belong to the educated classes, because it aims to establish harmonious systems for the development and maintenance of the right conduct of those belonging to a particular class, with respect to themselves and all others.

Recognizing the learned professions as the natural result of well-developed educational systems, which have advanced, little by little, as each interested individual added something for the general good, one must see how the ethics of the professions has promoted their development and established their dignity in the sphere of wisdom. Who has not seen the multiplying force of united harmonious action in the common school systems, the natural outgrowth of the ethical principles of free government? Laws are made for the whole people of a nation with respect to the rights of the individuals and of corporations, municipalities, states, and of the whole nation to all other nations.

Knowledge of justice comes from the willingness to harmonize the personal interests and conduct of neighbors, to combine the influence and power of collective bodies called communities. The ethics of the medical profession could not, therefore, fail to hold each member to the observance of those rules of right conduct defined in the code. If the profession of medicine required no personal efforts to advance it, there could be no means of distinguishing its members as belonging to the true and noble profession, from those hypocrites who adopt empiricism as a means of imposing upon the credulity of the unlearned masses of the people. The people have gradually come to recognize the necessity of respecting the written code of ethics as the only reliable guide in the choice of medical officers for the armies and navies of the world. State laws prescribe the qualifications of those engaging to practice medicine, upon the basis of regularly conducted educational training.

Indefinite organization, common affiliation, without written codes, has always left the members in a state of degeneracy. Definite organization of the medical profession in all nations gives a fixed character to its purposes, unites its working energies, and has led to those great triumphs of experimental research which are the proud boast of the best achievements of the human mind. Who has not heard that human life is prolonged, and the sum of human happiness vastly multiplied by the superior skill and knowledge of the regular medical profession? Who in our day and generation, outside the ranks of the organized body of the regular profession, has made a valuable discovery, or an important addition to the advancement of medical knowledge? I do not know of one, in any country.

Medical societies observing the code of ethics adopted by the representative bodies of the profession in each nation, become constituent elements of the most noble and the most learned profession in the world; and, by local, state, national and international congresses, discuss the best work of all the individual members. Organized upon the basis of a written series of ethical rules harmoniously adapted to the several nations of men, there is perfect community of professional aspiration, and whatever good may come from increasing knowledge is at once the property of the profession throughout the whole world, and mankind everywhere enjoys the full benefits of it.

Karl Koller demonstrated his discovery of the local anesthetic powers of cocain to the International Medical Congress at Copenhagen in August, 1885, and the people of every country were enjoying its benign influences in every city of the earth within thirty days from the date of the announcement of the demonstration in the section of the Congress.

Koch, of Berlin, published, in March, 1882, his discovery of the bacillus tuberculosis. In September,

1882, the students of the Hospital College of Medicine at Louisville, were taught the details of the methods of demonstrating the presence of the bacillus in the expectorated matter of consumptives.

The great work of Ephraim McDowell, over at Danville, in 1809, did not receive recognition by the profession, generally, for sixty years, because the profession of medicine had no representative national organization; international congresses had not brought the inventor of a great surgical means of prolonging life, face to face with his brethren of all nations.

The great Lister was enabled to inaugurate the universal reform in all surgical procedures, eliminating every element of danger from septic poisoning, and death from surgical wounds, by discussing his methods in society meetings. The medical journal helps the societies to spread quickly over the whole world the newest demonstrations of the members, with such criticisms and discussions as the society indulged at the time. The work done by societies may be well illustrated in the great changes made in Lister's own methods at Edinburgh, and subsequently at London, and those which followed as the natural results of the criticisms and discussions of them by the International Congresses of 1876 and 1879. In the Congress of 1881, antiseptic methods had already been abandoned for the aseptic principle, and the technique of the masters became at once the common property of the members of that congress, and all its constituencies in every country of the civilized world. The ethical codes defining the right conduct for individual members of the regular medical profession, brought about those harmonious relations which led to the organization of representative and delegated assemblies of medical men, and proved at once the common interests of the profession all over the world; established the national and international congresses, and put the newest and best fruits of all original research into the hands of competent practitioners in every town and country place having a member of a regularly organized medical society.

If reading these great works alone were sufficient to convey a knowledge of them so clearly as to enable one to practice them, colleges would not be necessary for the education of students, and societies would not be necessary for the training of practitioners in correct methods of observation.

In 1847, the AMERICAN MEDICAL ASSOCIATION was organized as the representative national body of the medical profession in the United States. It adopted a code defining the right conduct of those fit to become members, and provided rules for the determination of the proper qualifications of individuals by the profession of each city, town, county and district. An obligation to observe the rules of right conduct defined in that code makes any regularly educated physician eligible to membership in a society of representative capacity. Any society adopting as part of its constitution, the code of the national body, can send one delegate for each ten members, and one for any fraction of more than five, to the next ensuing annual meeting of the AMERICAN MEDICAL ASSOCIATION. These delegates are admitted to membership in the national body, on filing their credentials and paying the annual dues of $5 in advance, and signing a personal pledge to observe the Code of Ethics. Any member of the national body is admitted to all associations and congresses of the profession everywhere, may enjoy any of the discussions of original matter, and witness the demonstration of newly discovered facts, and convey them to his brethren at home.

The Kentucky State Medical Society was organized in 1851 and adopted the Code of Ethics of the AMERICAN MEDICAL ASSOCIATION as part of its constitution. It has had representatives in each annual meeting of the national body, and in all the international congresses, since the first one organized at Paris, France, in September, 1867, where our lamented brother, Prof. Lunsford P. Yandell Jr., was received with great *éclat*, as from the home of McDowell and Dudley.

The Kentucky State Medical Society admits to its membership all those who hold membership in the local societies at their places of residence, and who obligate themselves to an observance of the national Code of Ethics. We are here in our strictly professional capacity, as the representative body of the regular medical profession described in the code of right conduct, and our deliberations will be received and duly respected by the profession all over the world. Some of the matters discussed at this meeting will be published in all countries.

You see how important it is to have some standard by which to test the qualifications of those claiming membership in the medical profession, and how necessary it is for every community to have its medical society. You see, also, that the medical man who belongs to no society is not in fellowship with his profession, and can not, therefore, be regarded as a member in good standing. He is unworthy of your confidence, because he is, in fact, not a member of the regular medical profession to which he claims to belong.

In the Code of Ethics the delicate and responsible duties of the practitioner of medicine to the patient, are duly set forth. He is counseled to seek consultation in all difficult and protracted cases, for the purpose of inspiring confidence, energy, and more enlarged views in practice, as well as to secure the patient against a possible chance of any neglect to perform even the most trivial service. In the regular profession of medicine, where education is graded and knowledge has a fixed standard for entrance into the profession, there can be no mistake that the patient's welfare will not be duly considered. If, however, consultation were demanded by one of that class who make a pretense to some exclusive system of practice, there could be no possible advantage to the sick, because the limitations of an exclusive system of practice would forbid an extension of the boundaries, or an enlargement of the plan of treatment.

It may be fairly assumed that what is known to one man in any professional class, must receive the sanction of his confrères to give to it the dignified designation of knowledge. For we must limit that which we call knowledge to matters susceptible of demonstration, as it is by demonstration only that knowledge may be conveyed from one person to another. In the pursuit of knowledge, therefore, the regular profession of medicine is bound by no limitations, excepting those imposed by nature; and when we look about us and observe those who claim to practice by some exclusive method, or proclaim their choice of remedial agencies upon the basis of some dogmatical system, we must conclude that, either false pretenses are resorted to, to support this claim

or that it is founded in ignorance so dense as to excite profound commiseration.

The study of the life history of plants, and the laws governing their reproduction, as well as the composition and adaptability of soils and climates, are fields of inquiry open to all. The agriculturist, therefore, who still claims to be governed by the superstitions attaching to the signs of the zodiac, or the phases of the moon, possesses no convincing arguments to support his ignorance; and so it is with the followers of Hahnemann, and other founders of conjectural systems of therapeutics.

There is nothing in the Code of Ethics of the regular medical profession which forbids the broadest liberality of sentiment and opinion, either in consultation or other professional intercourse; and no limitations known to the human mind in the choice of remedial agencies or methods of study.

The members of the medical profession upon whom is enjoined the performance of so many important and arduous duties, and who are required to make so many sacrifices of comfort, ease and pleasure for the welfare of those to whom their professional services are constantly given, certainly have a right to expect and require that their patients should entertain a just sense of the duties and obligations naturally due to their medical attendants. It is manifestly the duty of the patient to select as medical adviser, one who has received a regular medical education. In no trade or occupation in life do men rely upon the skill of an untaught artist or an untrained hand. Does any one suppose knowledge of the profession is intuitive? Are we not all familiar with the constantly increasing requirements medical colleges exact of their students? And this is, after all, but the response to the constantly increasing demands for more learning in the profession of medicine. Patients should, therefore, prefer a physician whose educational training is known to be thorough; whose habits of life are regular; and who is not devoted to social pleasures, to business pursuits, nor bound by any sort of obligations which might divert his attention from the constant discharge of his professional duties. The patient should, if possible, avoid even the friendly visits of a physician who is not attending him; but, when he desires to change his medical attendant he should candidly express that desire.

Every individual, on entering the profession, as he becomes thereby entitled to all its privileges and immunities, incurs an obligation to exert his best abilities to maintain its dignity and honor, to exalt its standing, and to extend the bounds of its usefulness. He should, therefore, observe strictly such laws as are instituted for the government of its members. He should, with unwearied diligence, resort to every honorable means of enriching the science and ennobling the art. He should at all times entertain a due respect for his seniors who have, by their labors, brought the profession to the advanced position in which he finds it.

Our code says it is derogatory to the dignity of the profession to resort to public advertisements, private cards, or handbills, inviting the attention of individuals affected with particular diseases; publicly offering gratuitous services to the poor, or promising radical cures; or to publish cases and operations in the daily papers, or to suffer such publications to be made; to invite laymen to be present at operations, to boast of cures and remedies, to adduce certificates of skill and success, or to perform any other similar acts. Equally derogatory to professional character is it for a physician to hold a patent for any surgical instrument or medicine; or to dispense a secret nostrum, whether it be the composition or exclusive property of himself or others. For, if such nostrum have real efficacy, any concealment of its nature is inconsistent with beneficence and professional liberality. If mystery alone can give it value and importance, such craft implies either disgraceful ignorance or fraudulent avarice.

The professional life is entirely inconsistent with any sort of avarice. The desire for pecuniary gain never displaces the unquenchable thirst for knowledge and skill. The public ought therefore never to lose sight of the necessity of according to the regular profession suitable compensation for public services.

The assumption of a special title, or the claim of any superiority of methods in practice must expose such person to the suspicion of fraud. For by education alone can any one acquire sufficient knowledge of the profession to be able to practice it intelligently; and the titles bestowed by institutions of learning are always graded in accordance with the amount of systematic study pursued and the degree of excellence in scholarship. Thus, Doctor of Medicine means that person upon whom that title has been conferred is so learned as to be able to teach the profession to others. It does not mean that he can treat diseases of some particular part only, but it implies a sufficient knowldge to be able to engage in any department of practice.

Our code recognizes specialties as legitimate fields of practice, but there are no special fields of practice which may be properly cultivated independently of the state of the general system, or of the most remote organs.

The title of Doctor in Medicine covers the whole range of professional knowledge, and is never bestowed upon any who do not pursue the entire curriculum of the colleges.

Every practitioner owes his best professional services to all the other members of the profession, and all their dependencies. No affluent member, however, would accept the service and tax the time of his impecunious brother without bestowing upon him a suitable honorarium.

SOME MOOTED POINTS IN PELVIC SURGERY.

CHAIRMAN'S ADDRESS.

Read in the Section on Obstetrics and Diseases of Women at the Forty-sixth Annual Meeting of the American Medical Association at Baltimore, Md., May 7-10, 1895.

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CHICAGO.

In selecting for the subject of my address, "Some Mooted Points in Gynecologic Surgery," I am aware that I may lay myself open to criticism for presuming to bring before a body of medical practitioners constituting the highest national representative body of American gynecology, subjects which may be considered hackneyed—subjects upon which but little that is new can be advanced. My excuse can readily be understood by every pelvic or abdominal surgeon. Every such surgeon is a learner and an original investigator from the beginning of his career until its end, or a failure. No one ever learned laparotomy by attending lectures or by watching a master, or by the perusal of books. No one ever learned laparot-

omy in a personal experience of a year in actual abdominal work on animals or on patients, in a series of one hundred cases or two hundred cases. He, who, to his own mind has mastered this intricate and most important branch of surgery at any point in his career, is but an infant to whom greatness and fame will always remain strangers. A laparotomist must become an idealist if he is to progress and approach success. Couple with the idealist enthusiasm, with enthusiasm brains, with brains knowledge, with knowledge industry, with the foregoing honesty, and with all these ambition, and an abdominal or pelvic surgeon will develop who will always be less satisfied with himself than is any one else. As an idealist he will constantly seek to accomplish the ideal in surroundings which can never become so. Thus perfection will be sought, which while it can never be obtained can in this manner, only be closely imitated.

What, then, is my excuse for my subject? It is, that here in the shadow of a renowned institution with its brilliant surgeons, in the hearing of others possessing the attributes which have made them renowned gynecologists, I wish to bring these mooted points, the discussion of which may increase our idealism, which may arouse enthusiasm for our specialty, add to our knowledge, increase our honesty of purpose and industry, and not least of all aid in developing a laudable ambition. Not that all of these desirable things will be accomplished by my feeble effort alone, but the feeble effort, reinforced by the discussion of the subjects presented by this Section, may succeed in accomplishing something in that direction.

In dealing with my subject I shall not quote authorities; I shall not ransack literature in order to establish priorities; I shall not exploit methods.

The methods of every experienced gynecologist are an evolution from the methods of some admired teacher, together with accretions gained by subsequent observations, experiments, readings, reflections, and personal experience—an evolution from these to his own settled routine which has become his technique. Thus I will discuss these subjects from the light evolved from my own experience.

TREATMENT OF FIBROIDS OF THE UTERUS.

The surgical treatment of fibroids of the uterus is always a fruitful subject for discussion in gatherings like this. The fact that the subject is such a fertile one for debate; the fact that it is a debatable question, is the best proof that no one method has yet arisen which meets all indications, and that the question should be discussed until our debates show a lamentable lack of interest as a result of general agreement.

"Do you employ electricity in the treatment of fibroids of the uterus as much as you did formerly?" is a question which I have frequently to answer. To answer this question in the affirmative would be to admit that I ignored the recent great progress in abdominal hysterectomies and other pelvic surgery, and also to admit that electro-therapeutics had not progressed. While I employ electricity successfully in a large number of fibroids, I do not employ it in the same large proportion of cases that I did formerly.

The cases upon which I do the most satisfactory work with electricity now, are those which surgeons who have a wholesome regard for their statistics refer to me to get rid of, or similar cases which come directly to me. They are usually large hemorrhagic tumors, the subjects anemic, hearts hypertrophied, kidneys diseased, skin waxy, respiration difficult Filled with pelvic pain, pelvic pressure and pain of peritoneal adhesions. Uterus deep and irregular, menorrhagic when not bleeding, discharging semi-purulent fluid. Digestion ruined, secretions checked, bowels constipated and reflexes run rampant. In other words, among the most deplorable cases that it becomes a surgeon's lot to behold.

These cases I treat with galvanism in strong doses, systematically and rationally applied, combined with the most appropriate general tonics and alteratives. I apply the galvanism with the idea of getting the following well-known effects of the current: 1, most powerful general tonic; 2, powerful local antiseptic; 3, anti-hemorrhagic effect of positive pole; 4, local trophic stimulant.

I have not time to tell how much these apparently desperate cases invariably improve under this treatment; how I have resuscitated case after case so that they have been able to have their burdens removed by skillful surgery and again live; how I have been able with treatment from time to time to keep symptomatically well a score of patients who under no circumstances would have an operation of the safest nature, and who before electricity came to their aid were bedridden.

Another class of cases in which galvanism is a justifiable means of treatment is that of the hemorrhagic variety not of large size, the subjects of which are near the menopause. The hemorrhage can often be controlled and the atrophy of the uterus which is a usual coincident of the establishment of the menopause will do the rest. I have saved many such cases the horrors of an operation, while at the same time keeping them in symptomatic health during this precarious time of their life.

However, in the present state of pelvic and abdominal surgery, I would not voluntarily administer or recommend galvanism for fibroid tumors, the subjects of which were under 40 years of age, whose tumors were suitable for operative procedures, and whose general health would show an average chance for favorable surgery. While I would expect to be able to control the hemorrhages in the majority of such cases, improve their general health, and to reduce the size of the tumor, relieve the endometritis, and stimulate absorption of peritoneal adhesions, I would not expect these results to be permanent in a large enough proportion of cases to justify keeping the patient away from the more permanent and satisfactory results of modern surgery.

I can not admit that galvanism ever does harm in these cases except that it may be the means of keeping patients away from more effective surgery. It almost invariably accomplishes good, even if applied but a short time. Galvanism, except in fatal doses, the opinions of certain surgeons to the contrary notwithstanding, never produces peritoneal adhesions. It is one of the most powerful antiseptics we have, and the only one we can send through deep tissues without traumatism.

Needles, probes and other forms of electrodes improperly employed may carry septic material where they should not; electricity never does. Electricity irrationally and erroneously employed in cases of pelvic accumulation of pus, may, by producing powerful muscular contractions empty a pus sac into

the peritoneal cavity. This would be but the abuse of a powerful remedy instead of legitimate use.

Thus, as gynecologists, the better we understand our armamentarium the more will we value galvanism. The gynecologist who ignores this remedy, given to us by an exact science, will have reason to bark hard at its aggressions, and by his bark can we appreciate his hurt, and at the same time estimate his loss.

REMOVAL OF APPENDAGES FOR FIBROIDS.

This operation, popularized by Tait and his followers, as a remedy for fibroids of the uterus, has in my opinion about run its course. While, since its discovery it has served to relieve and cure many women suffering with fibroids, like all of the minor surgical methods for that difficulty, it has that fatal element of uncertainty, which in the light of the comparatively safe and certain hysterectomy makes it less popular as a remedy than it was before the appearance of this more successful rival.

The curative effect of the operation for the removal of the appendages is based upon: 1, its producing an artificial menopause—thus checking the hemorrhage of hemorrhagic fibroids; 2, the cutting off from the uterus, nourishment supplied by the ovarian arteries, thus reducing the tumor by direct curtailing of the normal blood supply of the uterus; and 3, any indefinite influence which such an operation may exert on the trophic nerves of the uterus, thus giving that organ and its ungainly parasite the benefit of any uncertain results which may occur from such a disturbance.

Theoretically, this is all a little vague. Practically it controls the menorrhagia of fibroids in about 92 per cent. of the cases upon which the operation is performed. Invariably, almost, where the menorrhagia is not checked, the tumor continues to enlarge and in a small percentage of cases it continues to grow, even when an artificial menopause is established. In a small percentage of cases only, does the tumor entirely disappear, even when a symptomatic cure is enjoyed. Therefore the tumor remains indefinitely, a constant source of anxiety, if not of possible future harm.

This operation then, which made an epoch not only in the treatment of fibroids, but in surgery, must be relegated to the rear by the very forces of surgical advance which it did so much to create. Its rival is hysterectomy; and so successfully is hysterectomy standing the test that one can scarcely find justification for the operation of removal of the appendages.

When a laparotomy is decided upon at all for these cases, it is difficult to give one good reason why a clean sweep should not be made and a hysterectomy accomplished. When a tumor is large and the broad ligaments consequently spread, a thorough removal of the appendages is more difficult than a hysterectomy. When the tumor is small the patient is ordinarily in prime condition, and while a hysterectomy is a little more difficult than the appendage operation, no one can be justified in leaving behind a useless diseased uterus, in order to save a few minutes' time in an operation. If the appendages are diseased as a result of infection, they should be carefully enucleated, and no matter how long it may consume (unless the life of the patient is positively to be endangered because of increased time required for a hysterectomy) the latter operation is imperatively demanded because of the certainty of infection of the uterus. This leaves the operation of removal of the appendages one which should be reserved as a makeshift, when for some good reason after the abdomen has been opened, the operator finds he has underestimated his patient's strength to tolerate a hysterectomy. Dr. Byron Robinson, of Chicago who finds it difficult to shake off entirely the teaching of the Birmingham sage, still opens the abdomen with the deliberate intention of removing the appendages for fibroids, but supplements that operation by tying the broad ligament, including the uterine artery, as it ascends along the side of the uterus. By thus applying my operation from above, he hopes and with reason, I think, to reduce the 8 per cent. of bleeders which follow the old Tait operation. This procedure increases the time of the Tait operation, and still leaves the uterus. It is one step in advance, but still a makeshift, and one more halting place at which the beginner and the timid may in times of discouragement close up and save his self-respect.

VAGINAL LIGATION OF THE BROAD LIGAMENT.

This operation which was devised by me for the treatment of fibroids is one which does not require a laparotomy. It is a minor operation in every sense of the word except in its execution. It consists as many of you know, in ligating from the vagina more or less of the base of the broad ligament of either side of the fibroid uteri. The vagina is first incised at its vault to the right and left of the cervix, at right angles to the base of the broad ligaments. The contents of the broad ligament are separated from the bladder in front and from the peritoneum behind; it is then ligated *en masse* with either a single or a double ligature of silk, kangaroo tendon or chromicized catgut, sufficiently deep and comprehensive to include the main channel of the uterine artery and any anomalous branches of that artery, and also all the nerve supply which finds its way to the uterus by this route. In exceptional cases the ligatures may be carried sufficiently high on one side so as to include the ovarian artery. The ligatures are cut short and buried by closing the vaginal mucous membrane by a running stitch of fine catgut.

The objects of this operation are: to check uterine hemorrhage; to cause atrophy of the uterine tumor by depriving it of blood nourishment; to influence a decrease of the tumor by interfering with its nerve supply.

Here we have a real minor operative procedure for the treatment of uterine fibroids. It has arrived on the scene of action at the wrong time to make itself very welcome. Instead of giving us a certainty, it gives one more possible relief, one more hesitating point. Its claims are so rational, however, and it has the so important advantage of being but a minor operation, that it will undoubtedly become a method of treatment of annoying prominence to the uncompromising radical of the future.

This operation may be performed with advantage in all incipient fibroids in which the operation of hysterectomy will not be accepted by the patient and a minor operation will be accepted. It may be performed in all hemorrhagic cases, when the patient has been so reduced by hemorrhage that it is considered unsafe to submit her to a hysterectomy. It may be performed in cases of advanced kidney and heart difficulties in rapidly growing or hemorrhagic fibroids

where a prolonged operation would not be advisable. It may be employed in any case as a direct and permanent curative means, with the understanding that the operation is still on trial and that the remote results may not be of such a gratifying nature as has been the case with the immediate results in the majority of cases already reported. From a rational standpoint as a treatment for fibroids, it should replace the operation of removal of the appendages entirely. It should not, however, from our present light on the subject, ever be substituted for the certain hysterectomy, when in the opinion of an expert laparotomist the latter is reasonably sure of success.

The operation is not applicable to enormous interstitial fibroids (which draw the cervix high into the pelvis), in suppurating fibroids, or in fibroids complicated with diseased appendages.

TREATMENT OF STUMP IN ABDOMINAL HYSTERECTOMIES.

A subject is this, the discussion of which has been long and is not yet ended, a subject, however, which has been discussed with far more amiability than was formerly that other one,of how shall we treat the pedicle in ovariotomy. The question of whether the ovariotomy pedicle shall be intra- or extraperitoneally treated is no longer a mooted point in surgery. Two or three short years ago the question of treatment of hysterectomy pedicles seemed to be as definitely fixed on this one point,as does the ovariotomy pedicle seem to be to-day. At that time surgery demanded that the pedicle of a tumor,the tissue of which was uterine structure, should have an extraperitoneal fixation. To be sure, we were never quite satisfied with that not altogether inelegant and incongruous disposition of the hysterectomy stump. The points of distress were: its immovability, its displacement and its exposure. It seemed, however, inevitable that we should submit to these objections in order to obtain hemostasis. Baer, however, in his simple device of ligating the uterine arteries before they reach the uterus, has rendered the hysterectomy stump bloodless, so that it can now be dropped as safely, and as free from unnatural fixation, displacement and exposure as can the ovariotomy pedicle; or it can with perfect impunity be removed entirely. And with this decided advance, hysterectomy has reached the point where its sequela are as little dreaded as the operation itself, and the operation is as safe as is ovariotomy.

I believe that extraperitoneal fixation of the pedicle in hysterectomies as a routine practice is no longer justifiable. That extraperitoneal fixation may in rare cases be a justifiable procedure I will grant. I have already mentioned what I consider the objections are to extraperitoneal methods, viz., immovability of the pedicle, displacement of the pedicle and exposure of the pedicle to external infection. Byford's vaginal fixation overcomes the first two objections as well as any method of external fixation. But the inventor of that method after making a brilliant record with it, has discontinued it as a routine in favor of the intra-abdominal.

Senn's new cuff method which, while it keeps the substance of the pedicle in the pelvis, fixes it, though distantly, through the intervention of the cuff to the lower angle of the peritoneal wound, and exposes it through this tube of peritoneal tissue to possible surface or external infection. I am sure, notwithstanding its brilliant parentage, that it can never be generally adopted as a routine practice, that it will appear in history as one of the curious methods, the outcome of the evolution strain for a perfect hysterectomy.

There are yet a few operators whom we have learned to respect profoundly, who still hold to the fixation of the pedicle in the lower end of the abdominal incision, who still employ elastic ligatures, serre-nœud, and the accompanying paraphernalia as a routine method of practice. With the results of such men's practice we can not find fault. Some of them are masters and therefore their results would be of the best, no matter what method they adopted. The question of the relative practicability and permanent effectiveness of any operation must be tested by the results obtained in the hands of the average surgeon. It is not enough that some immortal can make a brilliant record with his abdominal fixation. That he can accurately adopt and manufacture a pedicle the length necessary to obviate undue tension, displacement or bladder squeezing; that he can so treat his constricted stump that it will never become infected; that he can therefore prevent in every case, extension of suppuration to broad ligament sutures, and thus obviate interminable fistulous tracts; that he can prevent in every case, an ugly depressed abdominal scar; all of this is not enough. It is necessary that the operation of the future shall be one in which there is the minimum disturbance of normal relations between the organs of the pelvis and the remaining pedicle; in which there is the minimum loss of normal mobility in the remaining organs; in which the risk of secondary hemorrhage from pedicle or broad ligament is reduced to a minimum; in which the pedicle when once disposed of is out of reach of external infection as far as it is possible to get it, an operation which is practically finished when the abdominal incision is closed (instead of one which submits the patient and the physicians to an operative procedure which must last under the most favorable circumstances from ten to twenty days before the patient is finally severed from her tumor and detached from the mechanism of the surgeon); finally, the routine operation of the future must be one of minimum simplicity, easy of execution, and one which can be accomplished in the shortest time consistent with the above requisites.

Such an operation, I believe we have within our reach in employing the Baer method of ligating the blood supply of the cervix and lower portion of the uterus before it enters the tissue of that organ; in other words, ligation of the uterine artery and branches. After this simple procedure has been enacted, it matters little whether the stump is removed entirely, left buried, or projecting into the abdominal cavity.

KIDNEYS.

The failure to recognize obscure kidney diseases in patients before submitting them to a severe operation has been the cause of many avoidable deaths. We should not only recognize kidney difficulties in every case, but we should also know when a case is laboring under some form of kidney trouble, if that stage has been reached beyond which it is safe to proceed.

It is not enough that the urine in any given case is approximately of normal quantity; of approximate normal specific gravity; and that it gives negative results in tests for albumin and sugar. It is necessary to learn the history of the case, to estimate the

specific gravity in a twenty-four hour specimen, to ascertain the amount of urea for twenty-four hours, and to supplement this with a microscopic examination, thorough and complete. In diabetes we should not operate. In interstitial nephritis, when the disease is not far advanced, an operation may be risked with proper preparatory treatment. These latter cases are the very ones which from their great difficulty of diagnosis are often neglected and consequently disaster results.

The importance of this subject must be my excuse for entering into primary details. The following summarizes the signs of chronic interstitial nephritis: lowered specific gravity of urine; patient arising at night to void urine (when there are no bladder or urethral diseases to give rise to such a procedure); an enlarged heart with accentuated second sound, a tense pulse, and diminished urea. Albumin is frequently absent. The diagnosis is doubly sure when hyalin casts are formed.

I scrutinize all of my patients in all these points. If the foregoing state of affairs exists to a marked degree, I refuse to operate; if, however, with the above symptoms, I find a normal quantity of urine, which does not show a reduced specific gravity under 1010 to 1014, and where the amount of urea does not sink lower than six or seven grains to the ounce, and the patient is well preserved generally without advanced heart disease, I am confident that I can operate on them with safety, if I can secure proper preparation.

I prepare these patients by first placing them on an exclusive farinaceous diet, with milk and fruit, an indefinite number of days before the operation. A week or ten days before the operation she is put on a diuretic with instructions to drink large quantities of water. The object is to increase the daily quantity of urine to 60 to 100 ounces, in order to thoroughly flush the kidneys and rid the patient of dangerous accumulations. With 80 to 100 ounces of urine flowing for several days, with the patient living on a non-nitrogenous diet, with the urea in improved proportions, considering the diet, I feel safe to risk an operation.

Dr. Charles W. Purdy, who has had an enormous experience in watching the behavior of kidney diseases under operations, says in reference to chronic parenchymatous nephritis: "I see no reason why these cases, if unaccompanied with dropsy, may not be operated upon if carefully selected."

ABDOMINAL DRAINAGE.

There are now but faint and unimportant protests against the use of drainage in abdominal surgery when certain definite conditions exist. These protests are so few and so unimportant that the question of whether we should ever drain can no longer be considered mooted. The questions, how and when shall we drain, are points upon which there is still some discussion.

Drainage in abdominal surgery has definite indications to meet: 1, the removal of blood, the consequence of venous hemorrhage from points which have been the seat of adhesions; 2, the removal of fluids from ruptured cysts or from sponges, when the toilet of the operation has entirely failed to do so; 3, the removal of septic matter from the abdominal cavity.

The removal of blood from an abdominal cavity where there are numerous oozing surfaces is necessary, because it is the safest and quickest method of stopping the hemorrhage. We all know that many women have bled to death into their own bellies after operations where extensive adhesions have been separated, which might have been saved if some form of drainage had been adopted which would have removed the fluid before it could accumulate. Constant removal of the blood leaves the bleeding surface dry, and coagulations form at the vessels' mouths. If the blood is allowed to remain, the coagulum is dissolved in the accumulated fluid and the hemorrhage continues.

It is necessary to have a drain which will remove all the fluids, blood and otherwise, from the abdominal cavity for two other reasons: 1, because this fluid produces peritoneal irritation even though it does not become septic. The patient will exhibit this by a rapid and weak pulse for several days, while the weak and partially paralyzed peritoneum is accomplishing the removal of the fluids by absorption. 2, this accumulated fluid is the richest culture medium in the world surrounded by one of the most perfect incubators, and is therefore liable to develop any pathogenic material which may have in any manner come in contact with it.

Thus one who does not employ drainage at all in abdominal surgery, must select carefully his cases, so carefully indeed that he would discard about all which most required his assistance, or he must expect an unnecessary mortality. If he enucleates tumors, he must have large extensive oozing surfaces. If he attempts to check every particle of that oozing by ligation, cauterizing or other means, before closing the abdomen, he will be obliged to expose every portion of it not only, but he must carefully and successfully manipulate every portion of these surfaces wherever located in the abdomen. As these surfaces are frequently intestinal, these delicate and resentful organs, too, must come in for their share of manipulation. Much time (time of inestimable value) has been wasted. One can never be certain that all bleeding points have been secured, the delicate intestines have received unnecessary manipulations which weaken their tonicity, and finally the abdomen must be closed with no absolute monitor or guard, and no means of relief, but secondary laparotomy, if intuition should indicate accumulating blood. So, too, the same arguments apply to spilling pus in the abdominal cavity, contents of cysts or *débris* from any source. Excessive exposure of peritoneal surfaces, excessive manipulating, excessive sponging, excessive washing, only, will accomplish its removal and we can not be quite sure that the peritoneum will consent or be able to take care of that which may occasionally be overlooked.

In my opinion, one should drain always where there has been separations of adhesions, the oozing from which is sufficient to accumulate in any perceptible quantity in the dependent portions of the peritoneal cavity by the time one is ready to close the abdominal incision, as indicated by exhausting a glass drainage tube which has been placed in the cavity for that purpose. One should drain also when accidentally or otherwise, contents of cysts have leaked or spilled into the abdominal cavity when there is any doubt of its complete removal. Finally, in my opinion, one should always drain after any operation has been performed which calls for extensive flushing of the abdomen.

On the other hand, I do not consider it necessary to drain, if a perfectly dry condition of the peritoneal cavity is obtained (and there is no source from which fluids can accumulate) even if there has been during the operation a removal of septic material. In other words, I have great faith in the resisting or antiseptic power of the peritoneum, so long as it is in its normal state of dryness. It is only when the peritoneum, in addition to its normal work, is put to the strain of caring for little puddles of culture media which a careless operator has neglected to provide means of removing from its folds, that I am afraid of peritoneal failure, septic development and disaster.

I believe that the glass drainage with the suction pump is the safest and most effectual drain and a form which is almost invariably applicable. It accomplishes promptly and definitely the removal of all fluids from the peritoneum as frequently as it may seem necessary, and in a manner so that their amount may be accurately estimated. While the gauze drain may be used with advantage in other cavities, I must protest against it as a routine drain for the peritoneal cavity. For bleeding surfaces following enucleation, except in extraordinary cases (such as I have seen but few times) it can not compare with glass drainage and the pump. When it is employed I can not but feel that it acts more as a tampon or a dam than as a drain. With it, there is no way of knowing accurately how much work it is accomplishing, or how much it is failing to accomplish, or how necessary its employment may have been.

The glass drain properly cared for never does harm, even if its use in any given case is afterward found to have been unnecessary. Fistulæ rarely follows its use, and when they occasionally do it is in desperate cases where an operation without it would have been impossible.

INTRA-ABDOMINAL SUTURES.

Silk is an ideal suture for intra-abdominal work, if it is properly sterilized before using, and if it never becomes infected after it has been placed. The fact that silk, if once infected wherever buried, will never cease giving trouble until it has been removed either by surgery or by the very suppurating processes which it maintains, makes it a questionable ligature under any circumstances in abdominal surgery. One may be quite positive that his aseptic sutures are buried in aseptic tissues. He can never be positive that some septic process may not reach those ligatures during convalescence, or long months or years after convalescence, a septic process which finds exit somewhere in a long fistulous canal and which would heal spontaneously after discharge if it were not for a non-absorbable septic foreign substance at its bottom. The same argument holds good in regard to any form of non-absorbable suture material as a buried suture.

If, on the other hand, an antiseptic absorbable ligature is buried in aseptic tissues (whose life is of sufficient length to effectually accomplish its mission) it disappears promptly and is soon out of the way of septic processes which by accident may reach its vicinity, or if it should become septic before absorption is completed, the completion of the absorption will eradicate what would otherwise become a fixed nidus of infection, and the normal reparative processes of the tissues would be left unhampered.

Catgut and kangaroo tendon are the two forms of absorbable sutures which have been most employed. Kangaroo tendon is scarce, difficult to prepare, and consequently expensive. I have not employed it and therefore can not practically discuss it. Catgut until quite recently has been looked upon with suspicion. Even when with great care it had been successfully sterilized, so that no cultures resulted in its test, it still formed a nidus for suppuration in otherwise practically aseptic tissues, because as was discovered later, of its possessing qualities of a superlative culture medium. Then it was necessary to render it not only aseptic, but to saturate its substance with a harmless antiseptic which would not affect the integrity of the suture or poison the tissues of the patient. In seeking such an antiseptic, it was also desirable that the antiseptic or the process of preparing the gut would increase the life of the suture. Experiments and practice have been able to demonstrate that catgut sterilized by heat and afterward treated by either chromic acid or methyl blue will remain antiseptic and also possess life of sufficient length for most ordinary intra-abdominal work.

If these two forms of suture, on continuous trial carry out the promise that they have already given we will possess an economical, antiseptic, absorbable ligature for buried and intra-abdominal work, which will with great certainty do away with one of our most annoying sequela in that line of work.

Thus, gentlemen, in the half hour allotted to me I have frankly presented my present surgical status. I am aware that this is but one "stock-taking" point in my career. I am aware that in one short year from now, much if not all of this may be old. I would mistake my audience, and certainly the progress of surgical gynecology, if I did not realize that points in my present declaration have already become ancient history to some of you. What was the truth in the light of our progress one year ago is not necessarily so now.

The progress of modern surgery is like the onward march of a mighty army. It waits for no one. The weak, the stragglers and the non-progressive are left behind. The strong, the alert, the industrious, help to swell the crowded ranks and each doing his particular work conscientiously insures a wholesome irresistible advance of the whole.

Therefore let us not straggle, although we may not be in at the ultimate triumph. If we can not fill commanding positions, let us at least do our best in the front of the ranks.

So in the ranks of surgery let us become idealists. But constantly compare our ideals with those of others that they may not deteriorate. Let us be enthusiastic, but temper our enthusiasm with tried facts. Let us have knowledge of the works of others, but prove that knowledge by personal experimental labor. Let us be industrious, but not at the expense of doing unjustifiable work. Finally, let us cultivate ambition, but a laudable ambition, which has for its object the development of our art to a science of transcendent heights of usefulness.

Physiology in the Public Schools.—The following letter was received by the principal of one of our schools the other day, from a parent whose daughter is a member of the class in physiology: "Dear Miss ——, I don't want you to learn my daughter any more about her insides. It ain't decent and it turns her against her vituals. Respectfully, ——."

ORIGINAL ARTICLES.

A METHOD OF SUPRAPUBIC HYSTERECTOMY FOR GOOD OPERATORS AND BAD FIBROIDS.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY JOSEPH EASTMAN, M.D., LL.D.

LATE PROFESSOR OF ANATOMY, AND NOW PROFESSOR OF DISEASES OF WOMEN AND ABDOMINAL SURGERY IN THE CENTRAL COLLEGE OF PHYSICIANS AND SURGEONS, ETC.
INDIANAPOLIS, IND.

The lines of sound surgical principles converge toward perfection of technique in operating and the ideal operation. The proximity to the ideality of an operation is in direct ratio to the simplicity of its technique and the results obtained. Ideal results in suprapubic hysterectomy are best secured by ideal operators with ideal surroundings, upon ideal patients with symmetrically formed pear-shaped tumors.

I serve notice, in this presence, on those engaged in discussing the technique of hysterectomy that they can not have the last word until their means and methods shall deal with fibroid tumors, regardless of their morphology or pathologic condition, nor until the average operator shall advise the removal of fibroids as unhesitatingly as he does an ovarian cyst.

Despite the efforts of some to name a distinct method of operating because a flap is made here, or a ligature placed there, the problems of suprapubic hysterectomy are rapidly nearing their solution. Those engaged in the work are divided into but two classes: 1, those who have been and are yet satisfied with forming a pedicle and fixing the same in the abdominal wound; and 2, those who are not satisfied that this method was the best that could be devised, and have been earnestly endeavoring to reach some method which shall disregard the morphology of tumor, of broad ligaments, and the location of uterine arteries.

Those workers who have been wedded to the serre-nœud in abdominal fixation method have not emphasized, as they should have done, the important fact that the serre-nœud is quite as much for the adjustment of tissues as to control hemorrhage. When the broad ligaments are properly tied off, the main source of hemorrhage (in an average case) is shut off. On the other hand, the teaching that the uterine artery can always[1] be found in the broad ligaments and tied in a definite way, retards progress, and has in the past and will in the future be the means of sacrificing lives in the hands of beginners and those not familiar with the anomalies of arterial distributions, morphologic changes and pathologic conditions found in and about the fibroid uterus.

Anatomy, from the book of nature and not from the paper books, is the keystone of the arch upon which the principles of surgical progression shall ever rest, and is nowhere more important than in hysterectomy. Some seven text-books which I have examined on anatomy, state that the spiral or curling branches given off from the uterine arteries really penetrate the tissues of the uterus including its cervix. With this idea of penetrating arteries, surgeons have many times ligated and severed a single uterine artery in different places because of its zigzag course at the side of the uterus, the operator thinking he had secured a distinct vessel each time. I have peeled off the uterine arteries from the sides of the uterus leaving them in the pelvis of the woman, and cut off the cervix with little or no hemorrhage. This was for the purpose of proving how few ligatures could be used. It is well known to every gynecic surgeon that a nodular mass in a fibroid uterus can be peeled out of its capsule without ligating a single artery. What I have stated regarding the nourishment of the nodule by its network of capillaries and not by the penetration (for surgical purposes), holds true with reference to a uterus disorganized by fibroid tumor or tumors, no matter how large or how small—not only the fibroid uterus, but the normal uterus as well—not only the uterus but its entire cervix down to the external os. The uterine tissue may be penetrated by small capillaries, but I am convinced that it is not penetrated by arteries worth considering (as such) surgically.

This anatomic fact being established, the operator

FIGURE 1.—Fifteen pound tumor growing from anterior cervix.

who favors leaving an extraperitoneal but intrapelvic wound, having temporarily clamped the broad ligaments, proceeds without fear of hemorrhage from the uterus or its neck, to peel off the anterior and posterior flaps, and enucleate as much or as little of the cervix as he desires, keeping between uterine artery and uterus. He who expects to use the serre-nœud, having secured the broad ligaments with their ovarian arteries, will also peel down the tissues around the cervix, if the same be large, until he reaches a point where it is smaller, to the end that the same may be raised up to the abdominal wound without undue tension on the pelvic tissues. So what has been done on anatomic lines is really of great advantage, whether we favor uniting our pelvic with our abdominal wound, using the serre-nœud, or whether we will leave an extraperitoneal but intrapelvic wound. On several occasions, when I have presented the subject of hysterectomy, operators have attempted to prove that a pedicle could be made and fixed in the abdomen in every case. Some have even gone so far as to say they would not attempt in any case to follow any other method. I have shown tumors and photographs of cases where it seemed to me that abdominal fixation of the pedicle would have been very difficult if not impossible. Some three times in

[1] Dr. Etheridge, of Chicago, cuts a slab off the sides of the uterus before clamping broad ligaments.

the past year I have been able to remove a fibroid uterus with malignant degeneration of the endometrium, extending well out into the vagina. I will report one of the cases:

Mrs. H., aged 51, was referred by Drs. Murry and Baird, of Albany, Ind., the former believing that for several years the patient had had her pelvis and lower abdomen filled with a fibroid tumor; the latter, by vaginal examination, diagnosticating cancer of the cervix and endometrium. Both were correct in their diagnoses. The operation was made in the following manner: an incision made through the vaginal mucosa, was carried around the cervix, extending a half inch from any malignant ulceration. Iodoform gauze was packed into this incision. The abdomen was then opened and the tumor (nearly as large as the human head) was lifted out of the abdomen. The broad ligaments were seized[2]

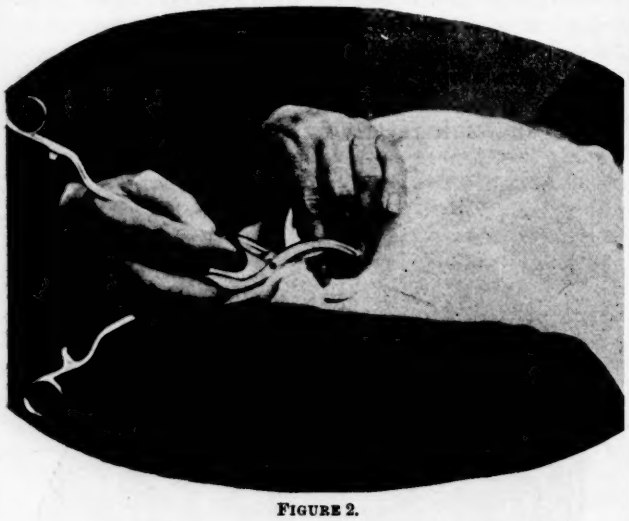

FIGURE 2.

and temporarily clamped as shown with these forceps. Having peeled down the broad ligaments and made anterior and posterior flaps, we then secured the broad ligaments with strong kangaroo tendons, cutting away the forceps. Then passing my staff up the vagina behind the cervix, with this gouge we soon found our way posteriorly down on to the staff and continued our enucleation right and left, (leaving anterior surface near bladder to the last) until the entire mass had been lifted out of the pelvis. We then brought the serous lining of the pelvis over the stumps of the broad ligament, and packing some gauze down into the vagina, we made complete sero-serous approximation of the entire pelvic wound. The patient made a very satisfactory recovery.

I report this case in part, naming the attending physicians, to the end that I may at least be credited with one operation where abdominal fixation with the serre-nœud could not be considered, and where leaving a piece of the cervix would have rendered the operation positively useless. I have found a number of such cases. If other operators have not, a time will come, if they get cases enough, when they will.

I would submit the following propositions for discussion:

1. There are cases where total extirpation is the only operation possible.

2. Ventral and pelvic extraperitoneal fixation being the only two methods worthy of consideration in average cases, which can be done in the least time.

3. Which operation gives us the greatest immunity from sepsis; (*a*), in abdominal wound; (*b*), in pelvic wound.

4. And here let me add, it will require the lapse of time and personal observation in a large number of cases before I shall reach my final conclusions.

[2] I do not favor beginning in the vagina. It is very difficult to make it aseptic.

Does ventral fixation give us the greatest amount of assurance against vaginal prolapsus, cystocele and rectocele? In pelvic fixation I have been bringing the stumps of the broad ligaments well down, stitching them to the vagina, with a view of holding that tube up as one's suspenders hold up their trousers; but I repeat, sufficient time has not elapsed, nor have I been able to observe a sufficient number of cases, only a little over two hundred, to convince me that the remaining pelvic organs will have sufficient support with this fixation. So far as my observations have led me to judge, where an atom of cervix is left, vaginal prolapsus is greater than where it is totally removed and vagina stitched to ligaments; the piece of cervix seems to push down, rather than act as a keystone to hold up. I can indorse no method as being better than another, until time, which proves all things and reveals the future with unerring certainty, shall have enabled me to make observation in a large number of cases where hysterectomy has been made both supra- and infrapubic, proving the merits and demerits of different methods.

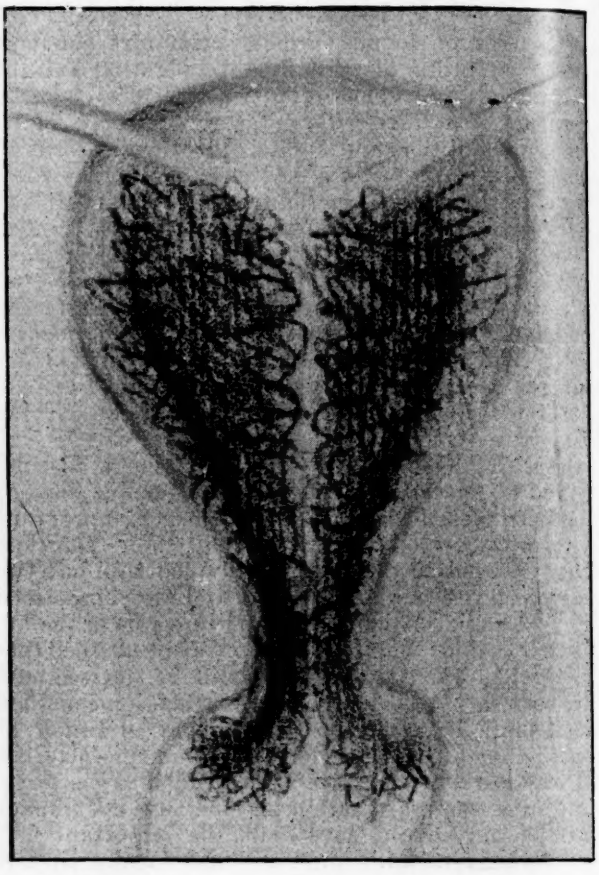

FIGURE 3.

Hysterectomy will always demand the highest surgical skill. The head to plan and meet the surprises which spring on us during an operation; the eye to see quickly the exact constriction of every ligature and adjustment of every suture; the thinking brain and facile finger, the two coöperating, and backed by an indomitable will to speedily and skillfully perfect the adjustment of the last suture with the same precision as the first, demand a combination of qualifications found only in the natural-born surgeon—the *master* in the *work*.

TECHNIQUE OF NEW METHOD OF ABDOMINAL HYSTERECTOMY.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY N. SENN, M.D., PH.D., LL.D.
CHICAGO.

The dangers attending the abdominal removal of the myomatous uterus are shock, hemorrhage, functional injury to important organs near the uterus, and infection. The operation that I am about to describe to you has in view, as far as can be done by an improvement of technique, the removal of these sources of danger.

As you all know, in abdominal operations the exposure of the organs to unnecessary handling and the loss of heat they sustain are most potent agents in the production of shock; hence in the removal of myofibroma of the uterus, the abdominal cavity should be exposed for as short a time as possible. It is therefore the particular aim of this operation to secure access to the myomatous uterus in as short a time as possible and with as little exposure of the abdominal organs; hence, after opening the abdomen in the median line in the usual manner, tying off the broad ligaments on both sides by two sutures, the uterus is brought well forward into the wound and then on a level with the section through the broad ligaments, the peritoneum is divided from one side to the other, and the flap is reflected and sewed to the parietal peritoneum, when the opposite side of the uterus is dealt with in a similar manner. In making such a peritoneal cuff it is absolutely necessary to cut only through the peritoneum, and not through the large subperitoneal vessels in order to prevent hemorrhage. In making the cuff, the dissecting forceps is an exceedingly useful instrument; the process of deperitonization can be carried on readily by the use of the hand or a blunt instrument. As soon as the cuff has been sewed to the lower angle of the wound, the balance of the abdominal incision is closed; we then have the uterus with the tumor or tumors outside of the peritoneum.

I call this an extra-peritoneal operation. Rendering the uterus extra-peritoneal is a matter, in the majority of cases, of only a few minutes, when the balance of the operation can be performed at leisure. The later steps of the operation are not attended by immediate causes which expose the patient to the risks of shock. Having closed the balance of the wound, the uterus is then amputated at the desired point. Usually in cases of single or multiple myofibroma, the cervix is intact. If the cervix is affected the entire uterus can be removed. For the purpose of preventing hemorrhage during the amputation of the uterus, I then proceed to ligate the uterine arteries on each side, which is done by applying an indirect ligature. It is unnecessary to take time in isolating the uterine arteries; we can ligate and tie them very accurately with needle armed with medium-sized silk ligature. The amputation is then made by making an incision obliquely so as to make a cone of the stump of the uterus and a corresponding depression of the parts left behind. Very little hemorrhage attends this part of the operation, provided the arteries have been tied on both sides; at any rate, no additional ligatures are ever required.

After the uterus has been removed, I then excise the mucous membrane of the uterine canal and close the wound with a row of absorbable sutures, chromicized catgut. For the purpose of arresting parenchymatous oozing the cut surfaces are then closely united by two additional rows of buried sutures; there is no need of elastic constriction, and nothing to induce subsequent necrosis of tissue. We leave the wound in a condition compatible for healing with primary union. If hemorrhage occurs at any time, the amputated cervix remains accessible for twenty-four or forty-eight hours. You perceive that so far the object we have in view is to expose the peritoneal cavity and its contents as short a time as possible, to control hemorrhage systematically and to prevent functional injury to organs near the uterus—the bladder, ureters and intestines. The organ is simply removed sub-peritoneally, leaving behind a peritoneal cuff. If the operator is sufficiently careful to resort to the necessary antiseptic precautions, the only source of infection during the operation will be the hands, the instruments, the sponge. There is no possibility of post-operative infection of the peritoneal cavity. The wound is usually two or three inches in length; its floor is packed with iodoform gauze, and two secondary sutures are at once inserted. Twenty-four or forty-eight hours later the gauze is removed. Usually a little parenchymatous oozing takes place, sufficient to saturate the inner part of the dressings. The wound is then closed. There is at no time any tension upon the stump. If infection should occur after the operation, it is limited to the wound outside of the peritoneal cavity.

Some of you may raise an objection to leaving so much of the abdominal incision unsutured immediately after the operation and may entertain the unfounded idea that ventral hernia will follow; but if you remember what you observe almost daily, that an aseptic granulating wound, when coaptated by suturing, heals as readily and as promptly as a recent wound, you will see that there can be no objection to the temporary packing of the lower angle of the wound until the time has elapsed that we no longer need to fear the two greatest dangers of laparo-hysterectomy—hemorrhage and infection.

Now, in bringing this new operative procedure to the attention of the profession the crucial test must be furnished by its results. Of thirty-three or thirty-five laparo-hysterectomies in unselected cases, not only every one of the patients recovered, but I have failed to observe in a single instance any untoward results. I believe, therefore, the Section will excuse me in pressing the merits of this method in dealing with such a formidable condition as myofibroma of the uterus; and, at any rate, I ask for this operative procedure a fair trial at your hands.

Insecticide for Tree-pests.—The year 1895 has been marked in some parts of the United States with an unusual prevalence of insects destructive to trees. The *Pharmaceutical Era* offers the following combination, which physicians may be glad to use now or put away for use next spring:

Corrosive sublimate	gm.	32.
Soft soap	litres	4,100.
Alcohol or wood spirit	cc.	500.
Water, q. s.		

Dissolve the corrosive sublimate in the alcohol or spirit and stir it into the soft soap, add water enough to make a stiff paint and apply to the base of tree with a brush. This is the best remedy against the borers of the apple and also for the woolly louse.

THE PRESENT STATUS OF THE ELECTRICAL TREATMENT OF FIBROIDS.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-Sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY A. LAPTHORN SMITH. B.A., M.D.

MEMBER OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND; FELLOW OF THE AMERICAN GYNECOLOGICAL SOCIETY; PRESIDENT OF THE AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.

MONTREAL, CANADA.

At the full flow of the tide of the most successful surgery the world has ever known, one must possess a good deal of courage of his convictions to rise in the presence of such a distinguished audience as this, to ever discuss, far less to advocate the treatment of tumors, even the most benign, by any other method than the surgeon's knife.

Appearing on the program of this meeting, surrounded as this paper and its author are, by papers and surgeons advocating every kind of surgical treatment, from tying the uterine arteries to removing nearly all the pelvic contents, my position is a peculiarly difficult one; the more especially as I have been trained as a surgeon and now occupy a position as surgeon in several hospitals where I am often compelled by circumstances to treat fibroids by surgical procedures.

It is only fair that I should say at the outset that I did not choose this topic for my discourse; it was assigned to me by our esteemed chairman, who, in order to preserve the high reputation for impartiality which has been possessed to an eminent degree by the chairmen of this Section of the ASSOCIATION in the past, no doubt wished that justice should be done to all methods of treatment at present employed. So strong is my own personal taste for surgery, especially of the abdomen, that I might have been tempted to disobey the chairman's command but for one reason, which was that as I reflected upon my work during the past seven years there passed before me the images of some fifty women whom I had treated for fibroids by electricity. First, as they appeared when I saw them with faces anxious with pain and blanched with hemorrhage, and then after their pain had been relieved and their bleeding had been stopped by galvanism and their cheeks had resumed a rosy hue, these fifty women's faces encourage me to do justice, though the heavens may fall, to the treatment which has cured them.

Then there pass before me the dying faces of *ten* women who were treated by total extirpation, at two of which operations I was the executioner; at six of which I was first or second assistant, and at two of which I was only a spectator.

True the majority of the ten operations were performed in the pre-antiseptic days, though by a great master in this department of our art; but four of them were performed within the last few years under the most rigorous aseptic precautions by men who have a low mortality in general for abdominal surgery.

The memory of these fifty women who have been cured by electricity, many of whom I could find, if required, and many of whom to this day stop me in the street to thank me and it for their rosy cheeks; and the memory of those ten women who are now no more, all tell me that I would be a traitor to the cause of truth if I remained silent, not only out of season, but in the very hour when it most needed to be spoken.

True, I can quiet my conscience when circumstances compel me to operate, by the reflection that one woman died while under electrical treatment, not through electricity but through an error of diagnosis for mistaking a tense impacted liquid tumor for a fibroid, which would not have been made if the abdomen had been opened, or, in other words, if the treatment had been surgical instead of electrical. This is the one and only case in which as far as my experience goes, I have ever had to seriously regret the use of electricity.

I can still further soothe my conscience when I am compelled to operate, by remembering that I have operated on ten women, seven by abdominal hysterectomy, treating the stump by leaving it transfixed at the lower angle of the incision; and on three by removal of the appendages, tying the ovarian arteries low down; and several others treated in the latter manner, at which I was first assistant, all of whom recovered and are now in good health.

When I visit the City of Brotherly Love where the surgeons have declared war to the knife upon the electrode, I am often placed in an awkward predicament. When I tell my friend, Dr. Joseph Price, that I am going to spend a few hours at the electrical clinic with Dr. Massey, he is surprised that a man of my intelligence can waste his time in such fiddle faddling nonsense, and it is useless for me to assure him that I can show him many women in Canada, from Manitoba in the west to New Brunswick in the east, who are pictures of health, and who have been cured by electricity.

On the other hand, when I tell my friend, Dr. Massey, that I am going to spend the morning with Dr. Joseph Price, extirpating fibroids, he looks with pity on my bloodthirsty taste and misguided energy.

In vain I tell him life is too short to treat all my fibroid cases by such means.

In this somewhat peculiar position which I occupy, I have one consolation, and that is or at least I hope that it will be so, that the conclusions which I shall presently lay before you, are those of one who is entirely unbiased and non-partisan, and are consequently to be accepted as far as they go, in good faith.

My own opinion on the present status of electricity in the treatment of fibroids is fully made up, and I shall now endeavor to lay it plainly and honestly before you.

During the last year especially, although it has been growing gradually for several years, the conclusion has become evident that electricity is not suitable for every kind of case nor for every kind of doctor.

But it is as true to-day, as it ever was, that for the cure of pain in, and bleeding from, the uterus, the application of the positive pole of the galvanic current properly applied and of sufficient strength to the uterine mucous membrane, is in the majority of cases effective. The percentage of successes is greatest in those cases in which the fibroid growth is interstitial; not quite so great in the cases of submucus growths, although in several of these cases a few applications have been followed by the expulsion of the tumor from the uterine cavity. The earlier the cases come under treatment the more surely they are cured; many patients with small interstitial tumors in the anterior wall having been completely cured by me, and still more under the care of others. So that

the plea for the early treatment of fibroid tumors by electricity is quite as just a one as is the early plea for operative treatment. Indeed, it is even more so. For while we can truthfully say that the electrical treatment, when undertaken early and with a correct diagnosis is at the present day entirely devoid of danger, no one can truthfully say the same of the treatment by operation. In fact, I am sorry to say that no one knows what is the death rate of the latter treatment. Three of the ten deaths which I have above mentioned have never been reported, and six of them were only reported at my urgent solicitation.

May there not be many other similar cases? When a women comes to a doctor for menorrhagia and he discovers a small fibroid, is he to urge her to submit to an operation, when he knows with the greatest skill and care she runs the risk of dying from the operation, and if left alone, the death rate is more than 1 per cent., while with electrical treatment the risk is absolutely nothing?

When she tells me that she will not submit to an operation, shall I assure her that I can do nothing for her, when I carry in my pocket the record of fifty similar or worse cases which have been cured by electricity? Surely, that were dishonest. And yet the temptation to operate, in spite of the danger of surgical and the safety of electrical treatment is very great, too great in some cases for us to resist.

Ours is a busy life, and there is not one of us here who has not often felt that life was far too short to accomplish all the good that we would wish to do, and for the want of a few more hours in the day, much work of value to our fellow beings must go undone. With this feeling strong within us, a poor woman applies at the out-patient department of our hospital with a small interstitial fibroid which has, however, doubled or trebled the bleeding surface of the uterine mucous membrane. We believe that we could cure her by a long and tedious course of treatment with electricity, from ten to fifty applications; if there are no facilities at the hospital, then at our office. If at the hospital, the time required for this case would seriously encroach upon the time allotted to our service there; if at an office there is the same, as well as other objections. And when we have made the sacrifice and cured the woman, what is the reward? Perhaps, but not always, the woman's thanks. Our own feeling of having done well, surely. But when we turn to our brethren, whose esteem is and should be the greatest incentive that we can look for, to good work well and conscientiously performed, what do they say? We have no fresh and bleeding tumor to take to the medical society, (as an Indian waves a white man's scalp), before our admiring brethren as a trophy of our prowess and our skill. I have shown the women over and over again; I have shown their clothing which had to be taken in, as much as seven inches, owing to the decrease in size; the women themselves have offered to state on oath that their bleeding had been arrested, their pain removed, and their general health improved. How were these triumphs of therapeutic skill received? With loud applause, you will say. No, indeed. The praise bestowed upon the exhibitor of even an apparently healthy appendix, the removal of which was followed by the death of the patient, is wild in its enthusiasm, when compared with the manner in which is received the report of a case of cure by electricity. Indeed, a sincere friend and admirer in our society warned me privately that my reputation was injured every time I showed a woman who had been cured by this means, and he urged me to show no more. But I must continue to cure them by that means as far as my time limit and life limit will allow.

How different when we report an operation, whether the patient lives or dies. Everybody seems pleased and praises us in proportion to the danger to which our patient has been exposed. But if she dies there are two at least who must regret that it was performed; the patient and the doctor; and sometimes there are the husband and the little children to be thought about. But how much easier to take the patient into the hospital and in a few days perform hysterectomy which we can do in a quarter of an hour sometimes. It is, as the French say, "*un mauvais quart d'heure*," but it is soon over and the patient's fate is sealed for weal or woe when we have put in the stitch which closes the peritoneal cavity.

After that the house surgeon and nurses take care of her and an average of three minutes a day for the next twenty days is the very most she requires of us. But with the electrical treatment, what with getting the patient ready, carrying out the asepsis of the vagina, and adjusting the apparatus, I have spent as much as one hundred precious hours on a single fibroid case. But the ovaries remained and many of the women are now the happy mothers of children and others are happy wives, capable of having children, though childless.

I have lately asked several well-known men, men of the highest surgical reputation (you would be astonished if I mentioned their names) whether they had employed the electrical treatment with good results, and they have assured me that they had, although they have never reported them; and when I asked them what was the principal objection to it, they replied, in confidence, that it took too much of their time. And this I admit is a serious objection to it, but not an insurmountable one. There are two ways in which it may be surmounted; one is by having an assistant whose time is less precious than our own, who has been trained to carry out the treatment with accuracy and care when we prescribe it for the disease which our more experienced touch has diagnosed. And the other, is by having several rooms and a nurse to prepare the patient, including the antiseptic vaginal douche and by devoting two afternoons a week, and having these patients come only at that time as many as six treatments an hour might be administered.

Never before has it been so well demonstrated, as it is to-day, that by the division and subdivision of labor the workmen become more and more expert. It does not surprise me therefore that the best results of the electrical treatment of fibroids are obtained by such men as Apostoli and Massey, who employ this treatment alone. They both obtain results which neither I nor any other operating gynecologist can hope for. In every large city we should encourage some one man to establish an electro-therapeutic clinic, where our poor patients, at least, might obtain the benefit of his skill in electrical technique, after having obtained the benefit of our experienced diagnosis; in time, his reputation would reach the ears of the rich, and he would then have some substantial reward.

The present status of electricity is suffering as did the status of abdominal surgery a few years ago, because it has been tried by men without sufficient

experience, and has as a consequence been found wanting. The electrical treatment of fibroids requires knowledge of the pelvic contents as well as the electrician's knowledge of the power he is wielding.

I must trespass on your time yet a little more while I refer to two points. One, a claim which has recently been made by Apostoli for the electrical treatment, which I can hardly indorse; and the other an objection which has been made to it, which I can as heartily deny.

Apostoli has discovered that the very failures of electricity can be turned to advantage in the following manner: it has been found that in those cases where the electrical treatment has been badly borne and has been followed by febrile reaction, so that the patients have been turned over to the surgeon for operation, the presence of pus tubes and pelvic peritonitis has been discovered. Apostoli has pointed out that electricity may be employed as a diagnostic agent for the purpose of detecting diseased appendages.

A remarkable instance of this came under my notice a little over a year ago. A young woman who had been employed in a restaurant in a New England town, gradually lost her health, with pain and hemorrhage. She suffered agony with her periods which came too often and lasted long, so that her face was blanched and haggard. There was no difficulty about the diagnosis as the tumor was large, round, symmetrical, in the median line extending up to the umbilicus and could be easily seen and felt, bulging up the abdominal wall. Several physicians in the United States, her family physician in Montreal, as well as myself, all agreed that it was a fibroid. One of them had tried electricity several times, but always with bad results, and so did I. As she was laid up in bed for several days each time, I concluded that the appendages were diseased, and after three applications I decided to stop and to perform celiotomy. On opening the abdomen the tumor was at once seen surrounded by adherent intestines, but it still appeared a symmetrically pear-shaped fibroid. I could not, however, find the ovaries and tubes, and while digging around for them, I made a line of clearage which being followed up I was able to dissect out of a portion of the tumor which proved to be a sausage-shaped pus tube; this was delivered intact, tied and cut off. Then followed a large cystic ovary; then the other tube which broke and inundated the field with pus, and then the other ovary, by which time the supposed fibroid was gone and only a moderate sized uterus remained. The pelvis was carefully washed out and drained, the patient made a rapid recovery and is now at work and enjoying perfect health. So that in this case Apostoli's dictum, that when the application of his method causes febrile reaction the tubes are badly diseased, was fully borne out.

Now the objection to electricity which has so often been made to it, especially by one of my most esteemed friends in Philadelphia, that it causes adhesions is not true. I maintain that one has no right to bring that charge: 1, if fibroids which have never been treated by electricity do have adhesions; and 2, if fibroids which have been treated by electricity can be proved not to have become adherent.

Now I am in a position to prove both of these facts. When in Baltimore I saw the abdomen opened for fibroid but it was so adherent to everything, intestine and abdominal walls, that the operator, one of the ablest in the world, did not consider it possible even to get the ovaries out, and the abdomen was sewed up. Now this case, the most covered with adhesions I have ever seen, you will say had received many applications of electricity, and so I thought judging from these statements, must have been the case. But careful inquiry elicited the fact that she had never received a single application of electricity. But that is only negative evidence. Let us see about some positive evidence.

Three or four years ago I treated a lady, head mistress of a large public school a thousand miles away, for hemorrhage and pain, by means of intra-uterine positive galvanism. She had received one year's leave of absence from her important duties and the commissioners had advanced her one year's salary in order to regain her health, she being utterly incapacitated for work. You may imagine that she was peculiarly anxious to get well and therefore submitted to a very rigorous application of the treatment three times a week with great fortitude, as high as 200 milliampères being frequently given at a time. And this was not for one or a dozen applications but for fifty times. By this time the bleeding and pain were nearly, if not entirely arrested, and I advised her to complete the cure by a few months rest at her old home down by the sea in New Brunswick. This she did and came back to me in July with rosy cheeks and sparkling eyes. She and I would have been perfectly satisfied with the result, and I should have reported her among my cures, had it not been for one thing, and that was that she asked me the question: "Can you promise me that the awful hemorrhages will not return after I have gone to my far away home in the West?" This I could not answer her affirmatively.

Her next question was: "Is there any other treatment by which you can guarantee that result?" My reply was "yes, one only, and that is hysterectomy." Although the operation was not required by her then present condition, yet owing to her financial situation which would preclude her ever coming to Montreal again, at her urgent request I removed her uterus.

Now if the charges against electricity have a vestige of truth in them I must have found the tumor covered with adhesions; in fact, the tumor and appendages must have been one agglutinated mass requiring some hours of patient toil to detach them, and for this I was prepared. But what was my astonishment, on opening the abdomen and screwing a cork-screw into the tumor to be able to lift it out smooth and shining as the top of a bald man's head; the transfixing of it with pins and circling it with the serre-nœud was the work of a few moments and in a minute more the tumor was off. She ran her 5 or 10 per cent. of risk of death safely and made a splendid recovery and was at the head of her school once more on September 1.

One such case carries more weight than a thousand assertions that electricity causes adhesions.

But I can duplicate it. A young lady who is now a trusted nurse in a New York hospital came to me the first year I used this treatment, for hemorrhage and pressure symptoms caused by a large fibroid. She improved so much that I decided that she ought to go home by the time she had received fifty applications. But after the last application she began to flow before the time, and I asked her to wait until it stopped. It lasted seventeen days, a steady little

stream of dark red blood. I became momentarily discouraged and advised operation which was accepted, but I handed her over to a more experienced operator than I was, at that time. I assisted at the operation and the tumor came out without the slightest difficulty, and was removed in the same way as the case mentioned above. I examined it most carefully and the only trace of an adhesion to be found was a spot about the size of a silver 5 cent piece, where the tumor had rubbed upon the brim of the pelvis on the right side and where she often complained of pain before coming to me. But there was not a sign of adhesion in the track of the electric current nor anywhere else except this one spot. The hemorrhage was due to a tiny opening in a sinus by the end of the electrode.

I dislike electricity, personally, because it takes up my precious time, but I want it to get fair play and not be blamed for sins that are not its own.

There is one charge, however, which was frequently brought against the electrical treatment of fibroids or rather against a method of applying it, in the past, and which was well deserved but no longer applicable, because no longer employed. I refer to the method of galvanic puncture.

The greatest claim for the electrical treatment of fibroids that can be made is that it has no mortality, that it is absolutely safe. If it is not safer than any other treatment, or, in fact, unless it is absolutely free from danger there remains only one advantage in its favor, namely, the saving of the ovaries. But galvanic puncture no matter how performed, whether by the vagina or through the abdominal wall, must ever be a procedure fraught with danger and is to-day practically abandoned. If any one still uses it, in the cause of electrical treatment of fibroids, I beseech him to use it no more. The positive pole of the galvanic current gently introduced into the uterus will accomplish our object by unseen but no less certain means. It dries up the juicy, bleeding mucous membrane and by its tonic action upon the muscular tissue through which must pass the vessels carrying nourishment to the tumor, its blood supply is cut off just as surely as though we tied the ovarian arteries which supply the body of the uterus. The action of the electric current as applied to fibroids is three-fold. The first is not mysterious; it is but the arrest of circulation in dilated capillaries by an electric-chemic cautery. The second is no more difficult to understand than the action of ergot or strychnin; it not only tones up the vasomotor system making the caliber of the arteries less, but it calls into play the special and remarkable power which the uterus possesses of controlling its own circulation when it has the strength to contract. The third effect of the current, its electrolytic action is, I admit, as mysterious as it has ever been, but not more so than the invariable absorption of syphilitic gummatous deposits following the administration of iodid of potassium. Whether what we call electrolysis means the actual breaking up of an organic tissue into inorganic atoms, or whether it means, as seems more likely to me, that the growth deprived of its blood supply undergoes fatty degeneration and is partly eaten up by phagocytosis, stimulated to greater activity by the trophic nerves; no one with a large experience with this subtle fluid can deny that a uterus infiltrated with and enlarged by the deposit of fibrous tissue, whether localized in the form of fibroids or diffused as in areolar hyperplasia, so that the sound will enter four or five inches, will invariably diminish in depth by means of electrical treatment.

Then again, what is the enormously enlarged uterus after delivery but a bleeding myoma? Does it not stop bleeding when the arteries which supply it with blood are squeezed by its contracting walls? Does it not rapidly get smaller when, for the want of blood and exercise, that immense mass of tissue silently undergoes fatty degeneration and returns to the blood from whence it came?

Wonderful and almost incredible as the total disappearance of a fibroid or myoma may seem to some, it is no more mysterious than this wonderful process of nature which we call involution. Have those who doubt and even worse, deny the power of electricity to work a change in fibroids, never reduced the size and weight of a uterus which nature had failed to involute? Has Emmett never reduced its size by repairing a lacerated cervix? Have Churchill and Athill and ten thousand others with honored names never reduced the quantity of tissue in the uterus by the application of iodin? Have not a hundred thousand others ever reduced the weight of blood and muscle and areolar tissue in the heavy uterus by means of glycerin and hot water and other therapeutic measures?

Then why in the name of reason and justice, will you deny that an agent which we can see blanching tissues before our eyes, and making muscles of every kind of contact, why will you deny, I say, that it can diminish the blood supply to, and favor the fatty degeneration and absorption of, the fibrous or myomatous uterus?

The electrical treatment of fibroids, reduced to the above simple equation and stripped of all the extravagant claims which were at first made for it, stands to-day upon a foundation so strong and true, that it will find an honorable place in the treatment of fibroids as long as women shall dread to die by the surgeon's knife, which I believe will be as long as the world shall last.

LIGATION OF THE BROAD LIGAMENTS FOR UTERINE FIBRO-MYOMATA—REPORT OF TWO CASES.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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The various forms of treatment and the varied surgical operations for the removal of fibroid tumors of the uterus has, in the past decade, been one of the most prolific subject of discussion in medical circles and the end is not yet.

Abdominal hysterectomy—supravaginal amputation, with or without the clamp, or extirpation through the vagina by morcellement, each have their advocates; while other operators of note advise women with uterine fibroids which are giving no special distress to leave them alone.

A certain proportion of uterine myo-fibromas produce symptoms which necessitate some operative procedure for their relief. Often the distress is occasioned by the association of a pus tube or an ovarian abscess, the diseased appendages, not the tumor, being the cause of pain and ill health. Should an

operator in such a case do a total extirpation? The operation done must fit the case and its varying conditions. If there be double tubo-ovarian disease, it would seem wise to remove the uterus and both appendages, whatever the age of the woman, for a uterus without either tube or ovary is a useless organ. Its removal will not lengthen the operation or add to its dangers in the least.

If, however, the woman be young and only the appendages on one side be diseased, the question is pertinent, Shall we do a total extirpation if anything can be done to cause the fibroid to absorb? If this can be accomplished the woman is left essentially in as perfect a state as though she had never lost the appendages of one side. It can not be denied that woman was created with these organs for a purpose, and if not diseased they are essential to the most perfect state of health during her menstrual life, even if she bears no children.

If the woman be under 38 to 40 years of age, if the uterine fibroid can be absorbed and her uterus returned to its normal size and functions, and if one set of healthy appendages can be saved, it must be apparent to the most radical, as well as to the conservative, that it is the desideratum to be desired. It is truly conservative, it is just to the patient.

Shall we subject every woman who has a fibroid to total extirpation, even if she has no other symptoms than discomfort from the presence of the tumor? I believe that every fibroid tumor of any appreciable size should be dealt with surgically, either to cause its absorption or to remove it *in toto*. Fibroid tumors have been said to be benign. I have seen malignant degeneration in three fibroids, and in conversation with other operators of experience have learned that they too have frequently seen malignant disease develop in uterine fibro-myomata.

Several years ago Gottschalk proposed to cause the absorption of uterine fibroids by ligating the broad ligaments, thus cutting off a part of the blood supply and so modifying the nutrition of the tumor as to produce this result.

Dr. Franklin H. Martin, of Chicago, was the first in this country to carry out the suggestion, and it was by the reports of his successful results that I was led, a few months ago, to try it upon a young woman who would not consent to an hysterectomy, but who would let me do any operation which did not involve entering the abdominal cavity.

The original limits of the proposed operation were that the broad ligament should be tied through the vagina. I have three times tied them through the vagina, and twice while I had the abdomen open for the removal of other diseased structures than the fibroid. In one of the cases in which I tied the ligaments in the abdomen, I should have removed the tumor, because the woman was at the age of the climacteric, had I not been desirous of observing its effect in that particular case.

The results have been so satisfactory that it may be of interest to listen to a brief history of these five cases:

Case 1.—Miss McC., American, age 25, single, virgin, entered the Buffalo Woman's Hospital Sept. 23, 1894. The patient was anemic, having had almost constant uterine hemorrhage for fifteen months. She had hemic murmurs. The fundus of the fibroid uterus extended two inches above the umbilicus. Examination of its cavity revealed no submucous growths. On Sept. 27 the base of the broad ligament, including the uterine artery, was tied through the vagina. The cervix was first incised as in vaginal hysterectomy, except that the incision was carried backward far enough only to sever the lateral utero-vaginal junction, and at the same time not open into Douglas' pouch. Then pushing back the bladder and the ureters from the front of the cervix, the base of the broad ligament was easily reached and the whole mass ligated. The line of incision was then closed by a continuous catgut suture. The uterus was noticed in two days to have decreased in size and especially in hardness, having a boggy feeling on palpation. She was discharged on the eighteenth day after operation, the fundus of the uterus being easily felt just above the pubic symphysis. An interesting, and at the time a very annoying incident of her history after operation was the high temperature which developed without any apparent assignable cause. On the second day the temperature went to 101 degrees and the pulse rose correspondingly. There was no evidence of peritonitis, no feted discharge, no pus from the incision; everything was negative. Careful exploration of the chest revealed no bronchitis or pneumonia. The temperature continued to rise and on the fifth day was at 104 degrees and the pulse 120. From this time it continued to fall and reached normal on the tenth day.

I have since seen the patient. She is hearty, full blooded and robust. The uterus is natural in size and her menstruation is normal in every respect.

Case 2.—Mrs. A., American, age 33, married fourteen years, sterile, entered the Buffalo Woman's Hospital Sept. 26, 1894. She has a fibroid of the uterus extending to a point midway between the symphysis and the umbilicus. She gives a history of pelvic inflammation three years ago, followed by almost constant pain in the left inguinal region. She has noticed the existence of the fibroid for about five years, during which period her menstrual flow has been too profuse and often too frequent. Examination under an anesthesia disclose a large mass to the left of the uterus which is probably a tubo-ovarian abscess. September 30 made an abdominal section; removed the left tubo-ovarian abscess out of dense adhesions and tied the base of the broad ligament. Before she left the hospital the uterus was curetted for a persistent muco-purulent discharge. The patient went to her home on October 18, eighteen days after operation. At that time the uterus had decreased rapidly in size. It is now entirely normal but she menstruates more profusely than before her illness three years ago.

Case 3.—Mrs. G., American, age 48, married, had one child twenty-six years ago, was brought from a distance on a cot to the Buffalo Woman's Hospital Jan. 21, 1895. She is very anemic having flowed profusely for the past six months, and has a fibroid of the uterus extending above the level of the umbilicus, and an ovarian cyst on the left side which has pushed the fibroid over to the right. The patient's abdomen is about the size of a seven months pregnancy. February 5 the ovarian cyst was removed and the blood supply to the fibroid cut off by ligating the base of the broad ligament. The patient was discharged on March 9, the fundus of the uterus being easily felt above the pubic bone.

The further history is interesting and raises an important question. She has not menstruated since the operation and has continued to increase in flesh and strength. On April 20, she began to notice a fetid vaginal discharge which rapidly became more profuse. In a few days her appetite left her and she began to have chills and fever. Her physician communicated with me and I asked him to send her back to me at once. On April 26 she returned to the hospital with a pulse of 120, and a temperature of 103.8 degrees. On April 27, the following day, I dilated the cervix and removed from the inside of the uterus a sloughing sub-mucous fibroid the size of a hen's egg. In forty-eight hours the temperature and pulse were again normal and the patient ready to return to her home. The uterus had contracted to its normal size.

Case 4.—Mrs. S., American, age 38, married, one child 13 years old, entered the Buffalo Woman's Hospital Feb. 22, 1895. This patient had been having menorrhagia continuing about two weeks each month for the past six months. During the past six weeks the flow had been constant, at times very painful, necessitating tamponment. Examina-

tion under anesthesia shows an interstitial fibroid of the anterior uterine wall near the fundus, approximately the size of a hen's egg. The uterus was at once curetted and the broad ligament ligated through the vagina. The hemorrhage immediately ceased. On March 15 she was discharged, and menstruated again March 25 rather more profusely than she ought, duration eight days. In April her menstruation was still somewhat more profuse than normal for her. All traces, however, of the fibroid are gone and I doubt not that the next menstrual flow will be normal in amount and duration.

Case 5.—Mrs. B., aged 45, American, married 28 years, sterile, entered the Buffalo Woman's Hospital April 8, 1895, with an interstitial fibroid of the uterus reaching nearly to the ribs on the left side, and on the right side extending to the margins of the costal cartilages. One year ago she refused to allow an hysterectomy for its removal, as she suffered no pain, her menses were normal, and her general health was perfect. The discomfort occasioned by the size and weight of the tumor is her only cause of complaint. On April 10 I tied the broad ligaments through the vagina. The patient returned to her home twelve days after operation. The fundus of the uterus was then one inch above the level of the umbilicus. She also noticed its falling from side to side when turning in bed, owing to the decrease in its lateral diameters. I have not seen her since her return home, but on May 1, a mutual friend brought word from her to me that the tumor was still decreasing rapidly and that she was watching its departure with much satisfaction.

The results obtained in these five cases, even though they be only five, seem to prove that this operation is effective in causing absorption of the tumor. The course of Case No. 3, from whom I later removed the sloughing submucous growth, seems to raise the question whether this operation will cause their absorption or necrosis. There is need of further experimentation to determine whether this slough was caused by the deficient blood supply, or whether it was merely a coincidence. The uterus evidently had begun its efforts to extrude the mass, because the patient gave a history of pain antedating the fetid discharge, hence the uterus may have caused its necrosis by pressure as it often does.

Many operators will object to substitute this conservative operation for the more brilliant hysterectomy. A surgical operation should be done solely with a view to the best interests of the patient. Unfortunately too often the brilliancy of the operation, not the best interests of the patient, actuate the operator in his work. Fortunately, however, the real brilliancy of our work resides, not in that which brings forth the plaudits of those who frequent our operating rooms, but in the ultimate results of that work, upon which our patients and the public will surely pass judgment.

There is no more danger in this than in an Emmett's operation. If the tumor be large there is some difficulty in reaching the broad ligament, as the tumor is apt to lift out of the pelvis by its growth. Furthermore, fibroids occur more frequently in unmarried women, or sterile women, in whom the vagina is small, thus adding to the difficulties of the operation.

If as a result of this operation a uterine fibromyoma absorbs and the uterus returns to its normal size and functions, is it not better for the patient in its ultimate results than an hysterectomy? Especially is this to be desired if the woman be young, as was my first case. She may bear children if she marries.

This operation is not applicable to all fibroids. Very large hard tumors will not be benefited by it. Tumors which spread out broadly in the broad ligaments, displacing the uterine arteries upward, are not appropriate for it. Very large tumors are apt to rise high in the pelvis making it difficult to get at the broad ligament, especially as fibroids so frequently occur in sterile women whose vaginas are narrow, thus adding to the difficulties of the operation.

The class of fibroids in which this operation will be found most effective is those of medium size, soft, bleeding tumors. The softer the tumor and the more hemorrhagic it is, the more liable is it to absorb after this operation.

There is merit in the operation in properly selected cases. It is conservative. It does not prevent more radical procedures later, if they be necessary.

DISCUSSION OF PAPERS OF DRS. EASTMAN, SENN, SMITH AND FREDERICK.

Dr. Gordon, of Maine—I am very glad to see this Section of the Association alive to the subject of hysterectomy. Two years ago, in this Section, I read a paper entitled, "Hysterectomy without a Pedicle," and one or two years since I read before the American Gynecological Society another paper, in which I took the ground that in every case of fibroid of the uterus, where the woman consulted me for any trouble arising from it, I should perform hysterectomy. It was a bomb-shell in that Society, and my friend, Dr. Mundé, stayed over, it is said, to "wipe up the floor with Gordon." I am very happy to see that the majority of the men present do not join my friend in this attempt to wipe up the floor with me. I have steadily pursued the same course, and I stand to-day on precisely the same ground. If I have any patients coming to me with trouble arising from fibroids of the uterus, I unhesitatingly recommend hysterectomy and resort to it every time. I do it by a process which, I believe, is entirely my own. Every one has his own method. I do it by a continuous suture of catgut, and nothing else. I simply put a clamp under the tube and ovary, then an inch below the clamp, with a long curved needle threaded with catgut I tie as strongly as I can and cut between that and the clamp. I then cut and sew until I get down to the uterine artery on each side. I change sides and cut down to the uterine artery or near it; I then divide anteriorly and posteriorly the peritoneum and dissect it down, the best I can with my fingers and scalpel. I dip my needle down and loop the uterine artery, passing the needle through the loop, and then after it is drawn up I cut the uterine artery, and at that point beside the loop I make a knot with the free end of my catgut. I then dissect the entire cervix; I make a complete hysterectomy. When the uterus is out, I have then simply to pass forceps over and carry the suture along continuously. It is extraperitoneal, yet an intrapelvic operation. It covers the entire thing. I am not particular about closing the vaginal opening except to stop the hemorrhage and leave a small opening for drainage. With rare exceptions I close the opening with silkworm gut and put in no drainage. I believe drainage simply indicates that we have no confidence in our asepsis, consequently I do not use it. I do not say I never use it, but as a rule I do not.

Dr. A. H. Tuttle, Boston—I am glad to hear of the universal success of hysterectomy, as brought out by the different speakers; and although there are slight points of difference in the technique of various operators, still they all have the one object in view. Personally, I believe total extirpation—that is, removal of the cervix—is the proper thing. By removing the cervix we afford better drainage by the vagina. We can close the abdomen, and if there is any secondary hemorrhage or oozing it will leak out through the vagina without causing further trouble. I believe where we leave the cervix there is possible danger of subsequent changes of a carcinomatous nature; in other words, I am satisfied in many cases of fibroids that the ultimate result comes from degeneration of the fibroids in some malignant form. I have good reason to make that statement from cases I have seen.

In regard to the question of hemorrhage, I think where we do a total hysterectomy, the danger of secondary hemorrhage is less than where we resort to a partial hysterectomy, for the simple reason that as soon as the hemorrhage or oozing is detected from the vagina, we can prevent it from terminating fatally. One thing should be emphasized in the treatment of these fibroid cases, and that is with reference to making the first incision into the abdomen. In one case where I had a multilocular fibroid to deal with, as I cut down upon the peritoneum at a point above the umbilicus, I encountered difficulty in entering the peritoneum and opening the peri-

toneal cavity. I discovered the bladder was carried away up on this tumor; the uterus was back out of sight. Had I gone in at the usual point of incision I would have opened into the bladder itself. It was a warning to me and should be borne in mind when we are dealing with large masses. In removing the cervix we should insist upon closing off the uterus in some way, and although it has been shown that infection from the cervical canal is comparatively slight, still we should take no chances whatever from any source of infection. Rapidity of operation depends as much upon the operator himself as upon the technique.

DR. HOWARD A. KELLY, of Baltimore,—could not agree with the statement made by Dr. Gordon, and he sees no necessity for removing fibroid tumors which are doing no harm. He does not urge the operation unless the patient is in some way suffering from the presence of the tumor; that is, unless she has pain, or hemorrhage, or pressure symptoms. He regarded Dr. Senn's method of operating as a retrograde movement in our technique. Dr. Kelly then described the technique of the operation he usually performs in the removal of fibroid growths of the uterus, which has given very good results in his hands.

DR. HENRY O. MARCY, of Boston,—said he was in favor of treating the pedicle by the intraperitoneal method. When he first suggested this some years ago, it was looked upon as an ideal but not a practical suggestion. The evolution through which the operation of hysterectomy has recently passed is one of the marvels of modern surgery.

DR. I. S. STONE, of Washington,—said that in all of the cases coming under his observation where some benefit followed the use of strong galvanic applications there was ultimately a recurrence of the symptoms and growth. The technique described by Dr. Senn he thought worthy of serious consideration. After the removal of a fibroid of large size, there is always considerable shock, and by following the plan outlined by Dr. Senn, he thought the amount of this shock would be minimized.

DR. G. B. MASSEY, of Philadelphia,—said that in the hands of careful men electricity remains the most valuable agent at our command for the treatment of the hemorrhagic forms of tumor. The treatment must be persistent and long-continued. In growths of large size, the improvement following its use may be slow, and a radical surgical operation may be preferable. In one case coming under his observation, in which Dr. Martin had tied the broad ligaments through the vagina, the tumor decreased in size during the first six months and the hemorrhage was less severe, but after that there was a recurrence both of the size of the tumor and the hemorrhage. Under systematic electrical treatment the patient has since improved greatly.

Dr. CHARLES P. NOBLE, of Philadelphia—agreed in the main with Dr. Gordon that when a fibroid gives rise to symptoms sufficiently severe to make a patient ill, it requires attention. It may not be necessary in every instance to perform hysterectomy. When they give rise to symptoms, however, it is best to remove them. During the past eighteen months he has seen five cases of fibroids which had undergone malignant degeneration, three of which were sarcomatous, and two were carcinomatous. He had not had good results with Martin's operation. Hysterectomy in his hands has proved less dangerous than ovariotomy. He did not think Dr. Senn accomplished anything by his operation. The method described by Dr. Kelly, and which was familiar to the members of the Section, would save at least twenty minutes in the performance of the operation. Dr. Noble believes that in a short time the general mortality of hysterectomy will be less than 3 per cent.

DR. J. M. BALDY, of Philadelphia—said that he would remove all fibroids that came under his care, because he never saw such a tumor that did not give rise to more or less trouble. An ovarian cyst would be removed as soon as discovered, symptoms or no symptoms, and so should a fibroid tumor, which can be removed as safely as ovarian cysts. As to ligation of the uterine arteries, it is a very plausible, very attractive procedure theoretically, and it is only applying to the uterine arteries what Mr. Tait does to the ovarian artery when he removes the appendages. He gets a shrinkage in his tumors by shutting off the arterial supply. The means of effecting a cure in the operations are precisely the same. Collateral circulation will sooner or later be set up, and the tumor again begin to grow. If the abdomen is opened and the uterine arteries ligated, the operator might as well include the removal of the uterus. The shock is no more, it does not add to the length of the operation, and with all due respect to Dr. Senn's fear of shock to the peritoneum he has none whatever. He rarely sees it. Mere exposure of the peritoneum does not lead to shock. He was glad that no one had advocated complete extirpation, for he believes this operation would be difficult. Dr. Kelly's method in the hands of expert operators is a good one, but it is a dangerous method for beginners. Dr. Baldy did not believe that it is good practice to tear the tissues in performing hysterectomy; he prefers to ligate and then cut. He agreed with Dr. Kelly in considering Dr. Senn's method as a retrograde procedure.

DR. DUDLEY, of New York—said it was utterly impossible in five minutes to do justice in the way of discussion to the series of papers that have been read, covering as they did a large field in the removal of disease from a woman's pelvis. He said that all the various methods of operating, which were referred to by the different speakers, are applicable in proper cases. We must learn to apply the method to the case, and not the case to the method. A complete and radical operation is the most brilliant, and often the one most easily accomplished, but it is not always the best one for the patient.

DR. FREDERICK had done a good many hysterectomies during the last five months. He had tied the uterine arteries in five cases as a test, and the results were so uniformly successful and he was so well pleased with the method, that he thought he would trespass upon the time of the Section by reporting the cases, so that the members might have the benefit of his experience. In the hemorrhagic forms of tumor in virgins or in young women, by tying the uterine arteries the tumor is absorbed, the patient's uterus, tubes and ovaries are left, and if she marries she may bear children or may not. Whether she does or not, she has in her pelvis normal organs that are better there than an empty pelvis. It is the surgeon's duty to do what is best in his judgment and experience for the patient, and every operation, as Dr. Dudley had said, should be shaded according to the case, and and not make the case come up to the standard.

DR. SENN said the members of the Section were not all Kellys and Baldys, and while the operation he had described was not intended for experts but for the average surgeon and gynecologist, he believes that even a Kelly or a Baldy could learn a lesson from the description of the operation. He had seen cases of myofibroma of the uterus—and so had Kelly and Baldy— where a complete hysterectomy, one of the most complicated of all surgical operations, was indicated and called for, and from which men old in experience shrank from undertaking such a task. The veteran Keith, after he had performed thirty-five laparo-hysterectomies, was candid enough to inform us that his courage began to fail him; that he was glad to grasp at more conservative measures, notwithstanding the unparalleled success he had attained at that time.

DR. EASTMAN considered the method described by Dr. Senn a step in advance, and said he was wise in presenting an operation which the average surgeon could perform, and that does not require the facilities that must be had in order to make the perfect operation which Kelly and others have described. He desired to place himself on record, as he did at the San Francisco meeting, to the effect that he had seen very many cases of gangrenous nodules, of fibroid tumors udergoing malignant degeneration, and a fibroid tumor of any size is dangerous.

THE SURGICAL TECHNIQUE OF ASEPTIC WOUNDS.

Read in the Section on Surgery and Anatomy at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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BOSTON, MASS.

Notwithstanding the revolution already wrought in the technique of wound treatment, I must yet think that no subject more important or practical can be brought before the profession at the present.

Wound infection, in a general way, is fairly well understood, and those who have given special attention to the subject will, at least in a large degree, accept the opinion which I published some years since, that suppuration, supervening in a wound, deliberately made by the surgeon, through healthy integuments, indicates that there has been some avoidable error in its technique. If the conscientious surgeon

accepts this view as the standard by which to criticise his work, and earnestly seeks to determine the cause of the error, he will find a gradual elimination of much that is superfluous, as well as defective in detail. For the scientific skillful surgeon a bacteriologic training is almost a *sine qua non*, since only by such repeated investigations is he enabled to familiarize himself with the special characteristics of the infective material with which he has to deal.

The reparative processes, supervening in the well vitalized tissues of the healthy animal, non-infected by bacteria, are comparatively simple. The necrosis line following a clean incision may be limited to the injured cells, and only a microscopic layer of tissue is involved in the changes which ensue in the impeded surrounding circulation, local stasis, and exudation of lymph. Beyond the line of the exuded lymph which glues the two surfaces together, the changes are very limited, an infiltration of leucocytes and plasma cells supervene, connective tissue cells develop, and a permanent union of the structures is effected. Upon the cutaneous surface the epithelial cells interblend, and this process of healing, even in wounds of considerable size, may go on almost without constitutional disturbance, pain, or edema.

In wounds of important structures and of considerable extent, there is generally a prompt reaction, exhibited by a considerable, more or less, rise of temperature, which is explained probably by the reflex disturbance of the nervous centers. Within limit this may be regarded as a favorable reaction, since within twenty-four to thirty-six hours the temperature falls without serious constitutional disturbance. This must not, however, be confounded with the fever due to septic infection, which usually does not make its appearance until after the third day.

If, on the contrary, the divided structures are not brought into apposition, the space is filled with coagulated blood and serum, and the repair processes become far more complicated. The aseptic blood clot is penetrated by leucocytes and proliferation cells, and, little by little, an organized structure extends through the mass, the so-called healing by blood clot supervenes, which is to say that the regenerative processes, observed in the first instance, take place much more slowly, but effectually utilizing the aseptic blood clot by a metamorphosis of its material in part, and in part by absorption. If in addition to the blood clot we have introduced into the wound a bacterial infection, entirely another class of conditions supervene, dependent upon the character of the infective material. If the wounds are large with much effusion, owing to the development of the bacteria, the blood becomes rapidly decomposed and a large amount of chemic poisoning is produced, the so-called toxins which are absorbed causing a kind of septic intoxication, varying in degree, but which may speedily prove fatal.

In a paper of this limit it is possible to refer only with extreme brevity to the character of the microorganisms with which the surgeon has specially to deal. Fortunately there is less necessity for the description of these organisms than at an earlier period. The staphylococcus pyogenes aureus and albus and the streptococcus pyogenes are almost the only organisms which produce suppuration. The staphylococci in their development produce the typical local suppuration, while the streptococci possess the property of invading the tissues and are, as a consequent, oftentimes eliminated with much greater difficulty, causing the acute forms of septicemia and pyemia. Other varieties of microörganisms not seldom develop in wounds, especially the putrefactive bacteria and although their organisms can not penetrate into, or reproduce in, the structures, the toxins which they produce may cause very serious constitutional disturbances. The developing cocci induce a rapid liquifaction of the albuminoids and thus break down the blood clot, and organizing lymph. Thus the toxic chemic material evolved in their growth may act as a local poisoning, devitalizing the surrounding structures, producing coagulation-necrosis. In the surrounding structures a complex process supervenes owing to this toxin infiltration, causing the so-called processes of inflammation, dwelt upon at great length by the earlier writers. There is much yet to be learned in reference to the changes which ensue about the infected wound structures, and from this standpoint the whole subject of wound inflammation needs to be rewritten.

The streptococci extend along the lymphatic vessels and lymph spaces and, when introduced into the blood, growing as they do in long chains, they have a tendency to form emboli in the smaller vessels, and thus set up new centers of suppuration at very considerable distances from their original seat of invasion. On the contrary, the staphylococci, developing locally are soon surrounded by a living wall of leucocytes, which impede the further dissemination of the invading enemy, and the contest goes on *in loco*, and the result of the battle will depend upon the vigor of the antagonists. Hence the practical importance, which must always be apparent, that the surgeon devitalize as little as possible the tissues in operative interference. It is indeed well known that it does not of necessity follow that a few microörganisms thus introduced will reproduce to the detriment of the individual; the superior vitality of the tissues may enable them to destroy their enemies *in loco*, and the processes of primary repair may go on uninterruptedly.

How a certain limited number of microörganisms can be destroyed in a wound, is a question of intense interest which can not be discussed here, beyond the fact that a phagocytic action of cells does supervene under certain favorable conditions and the bacteria fail of development. Of course, much depends upon the vitality of the surrounding structures and the non-presence of the proper pabulum or soil for bacterial growth. It is a fact that any considerable blood clot in the wound infected by developing bacteria prevents primary union.

Inferences of practical importance are clearly drawn from the above facts in regard to the manipulation of wounded structeres. Let all incisions be cleanly made with a very sharp knife, avoid the still too common practice of seizing and holding considerable portions of tissue with compression-forceps for the arrest of hemorrhage. Protect the structures carefully from tearing in the separation of wounds, as, for example, in the use of retractors in laparotomy, and perhaps more important than all, be careful in the adjustment and coaptation of like structures when suturing in the closure of wounds.

It is no excuse, however, for careless surgery that bacteriologic demonstrations show that a few bacteria, even of the pathogenic varieties, when planted in healthy tissues, may fail to reproduce, although

this is the probable explanation why some of the so-called "clean surgery" well performed without rigid aseptic precautions is not rarely followed by primary union.

Just at present, the profession is undergoing a transition state by the more or less general acceptation of the influence and power, which certain chemic substances, the so-called toxins produce. Blood serum affected by these is believed, upon that which many accept as good authority, to possess an inhibitory power to prevent in some way the development of the bacteria within the organism. It seems very probable that this fluid in the healthy body is far more potent in the protection of the individual from the invasion of bacterial enemies than was earlier supposed.

The military student may well profit in his studies of defensive warfare from a careful investigation of the wondrous way which nature has in defending her outposts from the invasion of bacterial enemies.

The thoughtful investigator makes the inquiry, wherefrom come these invisible hordes which endanger the individual at every infraction of surface? The aerial ocean in which we live and of which we must ever breathe is, it is true, rarely without deleterious bacterial organisms, but by general consensus of opinion, based upon abundant demonstrative evidence, these organisms are much less potent for ill in surgery than was earlier believed, and it is not less certain that the all-invading bacteria, contaminating clothing not worn upon the person, and water as usually found in hydrant service contain less dangerous elements than was at first supposed.

It is due in large measure to the very valuable experimental researches, carried on in the bacteriologic department of the Johns Hopkins University, that we have the most important demonstration that the all-pervading source of the pyogenic bacteria is found in the dead and dying epithelial cells. Indeed, it appears that nature with a rare temerity has subjugated this all common enemy and drafted it into her service for the purpose of removing the no longer serviceable plates of the armor with which the organism is clothed and protected. Within certain limits these invisible agents are permitted to riot and with insatiable avidity seize upon every dying epithelial cell, the demarcation line existing in the cell whose inherent organic power is greater than that of the overlying enemy. Hence the surgeon finds at the very door the ever-lurking foe, and the problem of their destruction is of comparatively easy solution with the abundant agencies which are at his command. For the destruction or removal of the bacteria invading the skin, antiseptic measures are of the greatest advantage and even necessary. In their use we find the easy explanation of the seeming difficult question of the good results obtained from different methods. One operator cuts short the finger-nails, soaks and scrubs with hot water and soap, until by a process of maceration he has loosened and detached the infected epithelial cells, and stands out as the bold apostle of cleanliness, having demonstrated, as he thinks, that soap and water are sufficient.

Another repeats the experiments of the early great master, Mr. Lister, and declares that the maceration of the skin of the patient, for some hours, with a watery solution of carbolic acid, is ample. Thus the cleansing process has been varied by the use of many substances, to each of which has been ascribed the protective power. To all this questioning and experience the laboratory investigation gives the one definite answer, By some means remove or destroy the loosened, worn-out, epidermal cells. The demonstration seems conclusive that the great enemy to all surgery, the hand of the operator, is best disinfected as first taught in Baltimore, by the use of solutions of permanganate of potash and oxalic acid.

If it be true, that permanganate of potash in solution does not color the living cell, and that all devitalized epidermal structures are invaded with pyogenic cocci, then the demonstration is ample, that the hands of few surgeons, relying only upon the ordinary processes of washing with soap and water, are likely to be surgically clean. These epidermal cells, however, may remain so adherent even after the processes of washing and scrubbing have been thoroughly practiced, that a prolonged operation may not cause their loosening and transplantation into the operative wound.

From these investigations we also have the knowledge of the more usual forms of contamination found in hospitals and the ordinary bed-chamber. Proliferating epithelium of the skin becomes disseminated and may prove a source of contamination through the infection of both the air and water. In this way instruments, sponges, and clothing are generally infected.

From the above it is easy to determine why the older forms of wound dressing were so invariably productive of suppuration; the bacterial development went on under the watery dressings and especially poultices, these proving hot-beds of infection.

The destruction of pathogenic bacteria during their period of rapid development is comparatively easy. Moderate changes of temperature affect their growth, and various chemic substances, even in weak solutions, produce their death, but those varieties which reproduce by spores are among the most resistant of living organisms. Exposure at the freezing point, immersion in boiling water for a considerable period often have little effect, but fortunately the surgeon very rarely has to deal with the spore-producing forms of bacteria. All the pyogenic cocci do not reproduce by spores; were it not for this fact it would seem almost hopeless to adopt methods of wound treatment which could successfully prevent the most fatal consequences, such as would follow were their common enemies of a type of which anthrax, tetanus, and tuberculosis may be cited as examples. But here also we find the knowledge of the life histories of these comparatively recent known enemies to mankind most valuable, since the spore producing bacteria are of much slower development which renders it easier for the wounded organism to resist their depredations. Comparatively weak solutions of bichlorid of mercury from 1 to 1000 or 2000 or a 2 to 5 per cent solution of carbolic acid are ample to destroy the pyogenic cocci, if the exposure is complete. These pus-forming agents, however, are quite completely protected by the fatty products of the sweat ducts, unless the watery solutions are for a very considerable period retained upon the skin. This is especially true of the mercuric solution, probably the most efficient antiseptic agent in general use, since the power of penetrating the epithelial cells is far less than that of carbolic acid. Hence in skin disinfection we note the importance of soap, alcohol, ether, turpentine, etc., as valuable adjutants.

The only class of wounds which this occasion affords the opportunity for discussion is that in which the surgeon is enabled to operate through previously unbroken, undevitalized, superficial structures, and where the wounded parts can be brought into complete approximation. Theoretically under such conditions primary union must ensue, and where this fails from the occurrence of suppuration, as I stated in the beginning of this paper, there has been some fault in the technique. The rule prevails in the treatment of the structures after they have been submitted to surgical interference in precisely the same formula as tersely stated for the treatment of a simple fracture, *fixation*, *retention* and *rest*, and as in a simple fracture the wounded structures must be without septic infection.

This naturally leads to the discussion of the terms aseptic and antiseptic, used with confusion, without a correct appreciation as to their meaning, and perhaps it would be better if both terms were entirely discarded. The problem is to make and maintain a wound without infecting the structures involved. This surely should leave the parts *aseptic*, that is free from pyogenic organisms.

In order to do this, it is equally clear that the circumfusa of the wound, the instruments, sponges, suture material, and hands of the operator must be free from septic organisms. To effect this the various means at our disposal, by which we sterilize the materials in use may still be called *antiseptic*, the name first given to these processes by the great master of modern surgery. I have already entered into the discussion of the infective bacteria as much as the time at my disposal permits, sufficient indeed to point out their danger. Important practical deductions from this teaching are comparatively simple, but most definite in character, and, although there will probably remain yet an infinity of variation as to detail, the great fundamental principles of this class of wounds and their treatment may be considered settled. First, and most important is the disinfection of the skin of the patient and of the hands of the operator. It will be remembered that the cocci growing in the skin penetrate as deeply as the devitalizing processes of the epithelial cells; that the sebaceous and hair follicles are yet more deeply invaded, and that they are here protected from destruction to a certain extent by the glandular and fatty products.

It seems almost superfluous to refer to careful experiments, often repeated, which show that soap and water, applied with the minutest care fail to disinfect the glandular structure of the skin, and, if this is true, although these measures are of the greatest importance, the processes of so-called simple cleanliness are not sufficient. Therefore we must call to our aid some of the various antiseptic agents long since proved trustworthy. The first of these is carbolic acid, objectionable because of its irritating character. It is found, however, that this very irritation of the skin is owing to its penetrating power upon the epithelial cells, and the glandular structures. It has an affinity for oily products and easily impregnates fatty substances. In this respect it is much more efficient than even considerably strong solutions of corrosive sublimate, but in the glandular and hairy portions of the body even the 5 per cent. solution of carbolic acid must remain in contact for a considerable period to disinfect these portions. For this purpose a 10 per cent. solution of oxalic acid is far more trustworthy. Cultivations made from the scrapings of the skin after having been treated carefully with oxalic acid solutions show the epithelial *débris* to be invariably sterile, even when the material to be tested is taken from the deep folds of the finger nails.

The use of the razor is important even where there is comparatively little hair to be removed. The repeated soaping of the parts softens and loosens the epithelium, which the scraping of the razor easily removes. To the soap, carbolic acid and bichlorid of mercury may be profitably added. If possible, these details should be carried out before etherization, because of the saving of time and the more thorough manipulation permitted when haste is not demanded.

Instruments are easily disinfected by heat, which is preferable to immersion in disinfectants, since the damage to the instruments is less than by a considerable period of immersion in antiseptics.

The preparations thus far completed, it now remains properly to protect and care for the patient in order that, during the operation, the surroundings of the parts to be operated upon may be also sterile. This is best effected by packing about with towels sterilized by heat, or by immersion in antiseptic fluids. I prefer the latter, towels wrung from a solution of 1 to 1000 of bichlorid of mercury, since they remain in position much better when wet than dry. It is also important to have on a table near the operator dishes containing solutions of bichlorid of mercury in which the instruments and hands may be occasionally dipped.

I use irrigation much less than formerly, but I am very sure I have seen no ill results from the so-called chemic irritation of warm solutions of corrosive sublimate, even in strength of 1 to 1000, and I am confident that much less damage to the injured parts ensues from it than from the irritation caused by frequent sponging. When the proper technique is faultless, it is very likely that sterilized water is of equal efficiency, but my experience teaches me that the damage from the so-called chemicals, if properly applied, has been greatly overestimated. To one who is an imperfect master of technique I can not question but that the use of weak antiseptics and hot irrigating fluids is of great value.

There can be no question but that marine sponges have been a common source of wound infection, and I do not wonder that operators, who can not first supervise details, have learned to rely on the gauze pad as a substitute, since these are easily sterilized by heat during the preparation for the operation. They are, however, far inferior in their absorptive power and a possible source of conveying lint into the wound.

It is very unwise to continue the use of sponges that have been used in septic wounds, but sponges carefully disinfected may be continued in repeated use with safety in aseptic wounds. Sponges should be thoroughly washed in cold water and after repeated washings with soap and water, I prefer soaking them several days in a 5 per cent. solution of carbolic acid, changing the acid two or three times. They are then put into a jar containing this solution and kept until required for use. This process is conveniently varied sometimes by carefully bleaching in an oxalic acid solution. They must, however, be carefully watched, for if kept too long in it the integrity of the sponge is impaired. If preferred, the sponges may be dried

in a muslin bag wrung from a 5 per cent. solution of carbolic acid and kept in a sterilized jar until required for use. They should then be put into a solution of 1 to 1000 bichlorid of mercury at the time of preparation for operation.

I consider it rather disadvantageous than otherwise to delay the operation by seizing every small bleeding vessel with compression forceps. Slight pressure will usually suffice and the tissues are far less devitalized than by the use of the forceps. This careful attention to the arrest of hemorrhage is also much less important, since the closure of the wound with buried sutures acts as a sufficient hemostasis. I seldom use ligatures except for the larger vessels, adjusting the sutures so as to include all special bleeding points.

Since the introduction of antiseptic surgery, little by little the treatment of the wound *per se* has been radically changed. The drainage tube is thought far less important, although unfortunately its use is still far too frequent. It is now judged wiser carefully to coapt the wounded surfaces and by some means hold them in fixed apposition. The still too common practice is, to effect this by the use of interrupted superficial skin sutures, and hold the adjacent parts firmly in place with compression bandages. These are supposed to consist of antiseptic dressings, applied in the form of pads to serve also the purpose of absorbing deleterious wound secretions.

Nearly twenty-five years have elapsed since I began my experimental studies upon the burying of animal sutures for the coaptation of wounded surfaces and fixation of the same at rest during the processes of repair. The results of these investigations are now very generally known, and the adoption of buried animal sutures gives promise of becoming universal. The catgut suture was the first employed and almost the only material used for some years, but a much better substitute is found in the tendon of animals, preferably that from the tail of the kangaroo. In the tendons of animals the ultimate fibers are disposed parallel to each other and in the processes of preparation the cement substance which holds them in apposition should remain unimpaired. In the connective-tissue sheath of the intestine of animals, the function of the parts demands that the fibers should be obliquely interlaced, and this sheath must of necessity be separated from the other coats of the intestine by the macerating processes dependent upon bacterial growths. When subdivided, these flat bands of connective tissue are not unlike oblique strips of the most delicately woven cloth which have been twisted into string and allowed to dry. When dry, it is comparatively firm and strong; when wet, elastic and yielding. The putrefactive processes of maceration have necessarily made it a hot-bed of bacterial growths which, beside being detrimental to its inherent properties, must necessarily be subjected to processes of disinfection. These may be satisfactory, but the resultant product does not furnish reliable material for buried sutures.

On the contrary, the tendon suture softens very slowly in watery solutions and does not swell and become yielding when buried in the structures. As a consequent, the knot, if used as a ligature, is as trustworthy as that of silk, and a tendon of the same weight and size is very much stronger. When properly chromicized, the tendon suture undergoes a very slow metamorphosis when buried in the living tissues, and weeks after its insertion, the line of suturing is easily traced. It is speedily surrounded by leucocytes and plasma cells which, little by little, invade its structure. This imbedding material is slowly changed into connective tissue cells which replace in large measure the suture material itself, thus coaptating and holding in position the sundered structures by a living bond of a permanent character.

The importance and value of these resultant physiologic processes have, for some reason, never been duly estimated, especially in the restoration of certain portions of the body, as for example, in hernia, laparotomy and in the suturing of tendons; in fact, in any part, where undue strain is likely to supervene in the restored activities of the individual.

The application of the buried suture may be effected in various ways. Where, for instance, it is desirable to coapt and hold at rest all the sundered structures, especially if they are liable to be hemorrhagic, the double continuous suture is of great importance, double, so that the tissue may be equally and evenly included and the coaptation perfect. This is best taken with a stitch similar to that of the shoemaker in his hand-sewing with a double thread. It is my habit thus to suture the peritoneum, the aponeurotic structures in laporotomy, hernia, etc. A continuous suture has a distinct advantage over the interrupted, in that we reduce to the minimum the knots which from their undue size ever act more or less as irritants. A great advantage results from the even adjustment of the parts, since in continuous suturing the compression must be the same along the whole line of stitches.

In the application of buried sutures, it is of the first importance to remember that we do not use undue constricting force, since we are dealing with vitalized structures in which the circulation must not be unduly impaired. The same force applied to a buried suture as is to often, perhaps generally used, in the application of interrupted cutaneous sutures is very likely to be followed by a process of local necrosis, although the included tissues are aseptic.

For the coaptation of the majority of wounds, the single running suture is to be preferred, as in illustration, after the excision of the breast, the amputation of a limb, etc. I find these best applied by the use of the larger-sized, full-curved Hagedorn needles, carrying the suture deeply from side to side. In this way, coaptation is perfect, the suture is buried in undevitalized structures and crosses the wound only at right angles. It is surprising to note the apparent ease with which nature cares for numerous sutures applied in this way. They may be used freely, but should be minimized sufficient for the coaptation of the parts, adjusting, as far as possible, like structures. Such coaptation of the divided structures leaves no open spaces or pockets to fill with blood or serum, and being aseptic, the use of the drainage tube is worse than superfluous. It withdraws from the wounded surfaces the very exudates that nature furnishes for the purposes of repair; it leaves of necessity a wound open to the extent of the drainage material applied, leaving a route for the possible access of infective material. He who drains an aseptic wound where coaptation of the sundered structures is possible, does it invariably to the damage of his patient. Fortunately, this practice is lessened each succeeding year and the time is not far distant, when, under these conditions, drainage will be absolutely abandoned.

Aseptic wounds should be completely closed at the time of operation. Referring to the bacteriologic conditions of the epidermis, it will be readily noted, what are the advantages arising from the closure of the skin itself by a buried animal suture, which I have advocated for these reasons for many years. A sharp Hagedorn needle, armed with a fine tendon should be introduced from side to side of the incision, through the deeper layers of the skin only, parallel to its cut edges. Each stitch must be taken exactly opposite the emergence of the preceding one, the emergence of the last stitch being through the skin at a considerable distance from the extremity of the wound. When the distal ends of a suture thus taken are drawn upon, the coaptation is as perfect as the seam in a well-made garment, and nothing further is required in the way of dressings, except the application of the collodion seal, which is rendered still more effective by its reinforcement with a few fibers of absorbent cotton. An aseptic wound thus carefully treated, even to the major amputations is subsequently very nearly painless, the parts are not edematous, and the collodion dressing is loosened by the exfoliating epithelium in about ten days. The scar is minimized and is oftentimes scarcely perceptible. This fact alone is no slight desideratum, especially in the exposed portions of the body.

My own experience is now ample to emphasize this method of wound treatment which I, some years ago, first introduced to the profession. Step by step it was carried out, as the result of inductive reasoning on my part, reinforced by my experimental studies upon the lower animals. Happily these methods, which were at first critically considered, as belonging to ideal surgery, have been abundantly confirmed by the experience of many surgeons, and are now advocated as practical, yea even obligatory.

It takes rather longer to close a wound as described than by the methods still too commonly in practice. However, the work of the surgeon is finished when the patient leaves the operating table, and the subsequent nursing is minimized. Economy is subserved in the abolition of all clumsy dressings, while the danger of subsequent infection of the wound is absolutely prevented. The period of detention in bed is greatly lessened, perhaps in a large class of wounds altogether avoided, and the subsequent requisite care on the part of the surgeon and his assistants is minimized to a degree in striking contrast with that of ordinary hospital service.

REPORTS ON TYPHOID FEVER.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY J. E. WOODBRIDGE, M.D.

YOUNGSTOWN, OHIO.

When I first publicly declared that "death is a wholly unnecessary consequence of typhoid fever, and that every case in which proper treatment is instituted sufficiently early in the course of the disease can be aborted," I stated also that "I fully appreciated the disgrace and ignominy which would await me" should I be found guilty of promulgating a false doctrine. I knew that I was speaking a language which would be utterly unintelligible to the greatest thinkers in the profession, and also that it would have been so to me, but for the *eclaircissement* of many years of experience. As it took so much evidence to convince me, 1, that *any* case of typhoid fever could be aborted; 2, that any *severe* case could be aborted; and, finally, that *every* case could be aborted, and that death from the disease could be always averted; I can not understand how, without the most indisputable and undeniable proof, these claims can be admitted by any physician, who had been taught as I was in my youth, to regard typhoid fever as a "specific infection," possessed of some occult power of resistance to all curative treatment, which it was hopeless, if not flagitious, to attempt to counteract, and bestowing the title of "quack" upon any one making any pretension to having succeeded in so doing.

I shall, therefore, endeavor, in this report, to present the strongest available evidence, not only that the declaration is true, but, that which for want of a better name I have designated, antiseptic medicine, has a reserve power for good that I have not even mentioned; for this purpose, I wish to reproduce the verdict of a few of the many physicians who have treated by my method a large number of cases of typhoid fever; and also to note some of the most characteristic or otherwise interesting cases which I have treated since our last meeting.

Desiring to give every facility for the formation of a just estimate of the value of my statistics, I have invited the closest scrutiny of my cases of typhoid fever; have ever held myself in readiness to demonstrate the correctness of my theories in hospital or in private practice; at home or abroad; and I have requested the publication of any failure on my part to do all that I have been teaching the medical profession that it ought to do. I have also promised to present a "Report of Cases" before some great medical society each year, until a general assent has been given to the accuracy and truth of my theories, and death from typhoid fever is unknown; and when long-continued constitution-destroying sickness from the disease shall be regarded as a disgrace to the individual practitioner, and not, as at present, a reproach to the great body of the medical profession.

During the past year, as during the preceding thirteen years, I have had no death from typhoid, malarial or any continued fever, or following any pathologic condition which could by any possibility be mistaken for either of them, and I have failed in no instance in which the patient has come under my care before the eighth day of sickness, to abort the disease.

Since my return from San Francisco last July, I have treated, alone or in consultation, fifty-eight well-marked cases of typhoid fever. Of these cases some occurred in Youngstown, or the surrounding country or towns; some in Pennsylvania, some in northern Ohio and some in other States, and no doubt existed, in any instance, in the minds of the attending or consulting physicians, as to the correctness of the diagnoses. I have, during the same time, aborted the disease in a large number of cases of which no charts were preserved.

During this period, there have been reported to me, as treated by other physicians, acting under my advice, given orally, in consultation at the bedside, by letter or otherwise, about eight hundred cases of typhoid fever, with nine deaths; a marvelously good result when it is remembered that they were sailing on an unknown sea, with no pilot to steer the course; that they had unshipped the rudders, thrown over-

board the compasses and were endeavoring to weather, unaided, the fiercest storm that could ever strike the ship—having learned that all recognized methods of treating typhoid fever are so valueless that the cleverest men deny the possibility of doing what 117 physicians have done and are doing every day, viz., curing the disease;—they abandoned all of the procedures with which they were familiar, and with only a brief outline of my *modus operandi*, which must necessarily have proved a most insufficient guide; yet there were enough earnest and conscientious physicians, whose keen insight and mother-wit enabled them to follow these rather incomplete directions to a successful issue in so many typical cases of typhoid fever as to afford me conclusive evidence that the disease can invariably be aborted and every life saved; and which should also carry conviction to the mind of any intelligent physician who will carefully and impartially weigh these reports with my fuller treatises on the subject.

While neither these accounts nor my own observations have added anything to my knowledge of the power of this so-called "antiseptic medicine" to abort typhoid fever when the treatment is begun early in the course of the disease, they have served to convince me that in my original declaration, I did not place too high an estimate on its value. They have done more—they have strengthened in my mind the belief that even in *late* stages of uncomplicated typhoid fever it has power to eliminate all ordinary causes of death, save the accidents of hemorrhage and perforation; and to minimize the danger of their occurrence.

An analysis of the failures in a test of any given method is sometimes more instructive than an equal number of successes would be; and as that happens to be quite true in this instance, the following abstract of cases of typhoid fever, coming as they do from disinterested observers, may possess for this reason a higher import than would the report of a much larger number of universally successful cases from my own practice.

In one large hospital in which the observer held an honorable position under the Government of the United States, several exceedingly serious cases were aborted by the "Woodbridge method," but finally a death occurred, for which catastrophe I could find no excuse, until I discovered that the patient had taken at three hour intervals, the extremely minute dose which I had advised to be given every fifteen minutes.

An instance of the lack of that discernment so requisite to success in so difficult and delicate an undertaking, is well pictured in the following quotation taken from the epistle of an apparently conscientious, just and high-minded gentleman: "The patient had been sick several days; had a morbid appetite; complained of being 'so tired,' chilly, headache, etc., before consulting a physician. I gave him a simple laxative pill containing colocynth, podophyllin, aloes, etc., which had a tremendous effect, so much so that I had to interfere with remedies. His temperature rose to 104.5. I 'pushed' large doses of quinin upon him and for two days the fever stayed away, and he got up and walked about the place. This was against my orders and he was soon compelled to go to bed; real typhoid fever tongue; some tympanitis; high temperature. I began giving guaiacol and eucalyptol, *as recommended by you*, but mixed with bismuth. He was sponged freely and given 4 ozs. Walker's best whisky. He died that night at 11 o'clock."

The writer closes this eight-page account of his experiences with the "Woodbridge method" of treating typhoid fever with: "Now in this case your powder was not used. All your other suggestions were followed." Were they? The patient did not consult the doctor until he had been sick "several days," and he was then given a "simple laxative pill which produced a tremendous effect;" then "large doses of quinin were 'pushed' for two days"—and finally he was given *two of the ingredients* of my formulas, but not those which to his patient were a veritable "*sine qua non*," *i.e.*, "the play of Hamlet with Hamlet omitted."

Thus in these illustrations one can easily see that not only were the minutiæ of my instructions unmistakably disregarded and neglected, but the chief essentials were likewise overlooked to such an extent that neither these deaths nor others occurring under like circumstances should be charged to the "Woodbridge treatment."

Dr. W. T. Dodge, of Michigan, has written me several letters which I consider most valuable contributions to current medical literature, and which I am unfortunately prevented from giving in full, by want of space in the JOURNAL. He says: "I have seen three fatal cases this year, but none of them were uncomplicated cases, though I suppose none of them would have died had it not been for the typhoid element. One case was admitted to the hospital in the second week, as near as we could ascertain. He said he had been sick two weeks; and he had a temperature of 104.5 degrees when admitted. We gave him your formula No. 1, until free catharsis was produced; then the guaiacol and eucalyptol combination in gradually increasing dosage, until he took 5 m. of guaiacol and 10 m. of eucalyptol every two hours. His temperature came down in a few days to nearly normal, but he had severe diarrhea, and pain in the abdomen; became wildly delirious; then comatose, and died about ten days after admission. An autopsy revealed a great many ulcerated Peyer's patches, and a general enteritis as well.

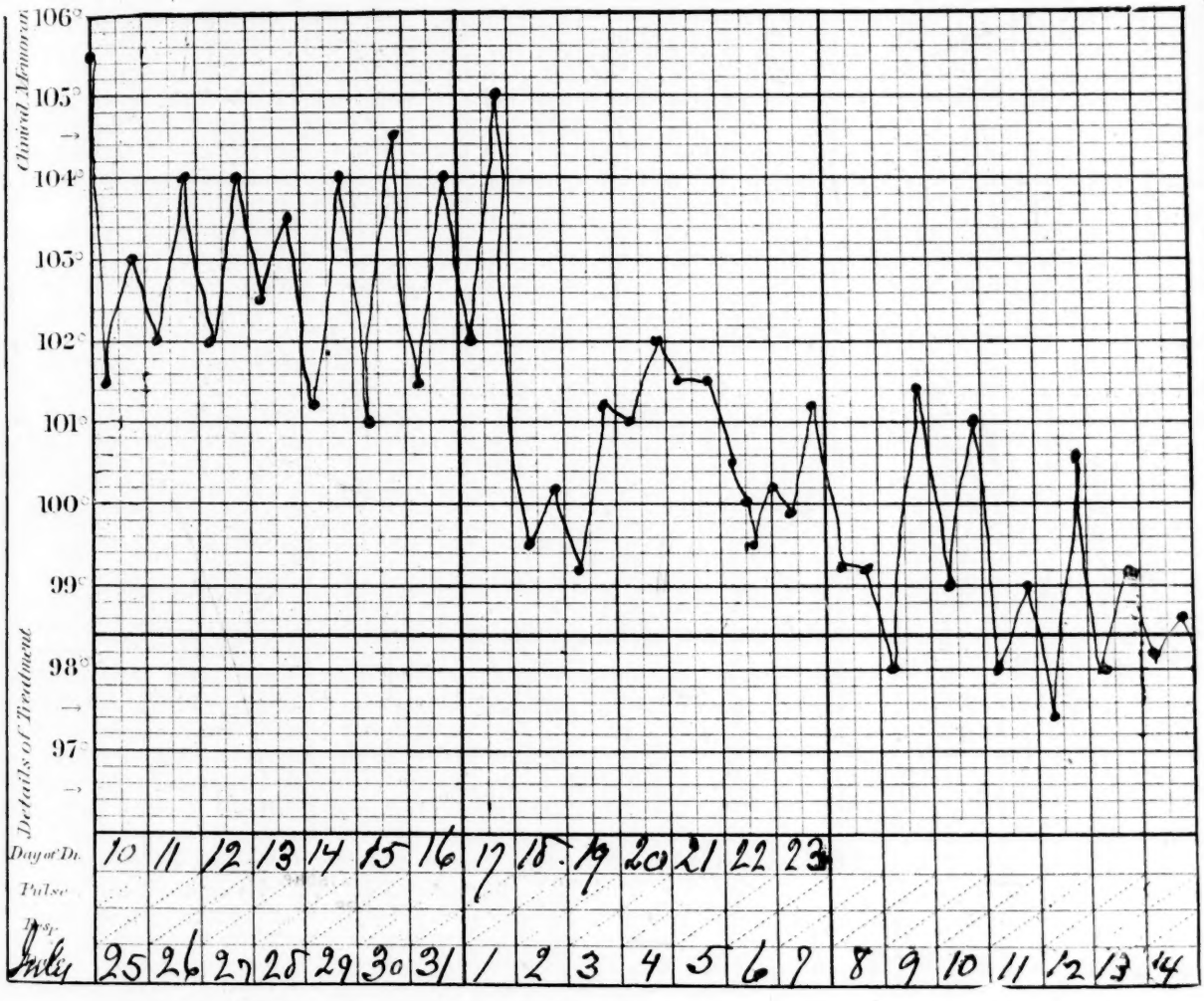
"The next fatal case was also admitted in the second or third week. It was impossible to learn just how long he had been sick. He also had pneumonia when admitted and in the course of a week succumbed to the two diseases. Autopsy showed ulcerated Peyer's patches in abundance. He was given the same treatment as the other case, in the same manner, with addition of appropriate medication for the pneumonic complication. The third case I saw in consultation and was in the private practice of Dr. B. The young man had been sick two weeks, when Dr. B. was called, and had been starved and treated by a 'quack' who 'starves fevers.' He was much reduced and had a hemorrhage the day Dr. B. was called. I have had five other cases that have recovered. Two of them were aborted in the proper sense of the term, and in three, where the treatment was begun about the tenth day, I am satisfied that the course of the disease was modified for the better. I have never before attended cases of equal severity that passed through the disease in so short a time and made so nice a convalescence as did these three cases.

"Two cases (and they were the only two in which I was able to begin the treatment during the first week of illness) were certainly aborted. One of them lived in a neighboring town. I visited him first one

evening, and found that he had been sick four days and had a temperature of 103 degrees. I gave him four grains of quinin, to be taken during twelve hours. The next night he had a temperature of 103.5. I placed him on the powder in half hour doses for twenty-four hours, then 3 minim doses of guaiacol and 6 minim doses of eucalyptol every three hours. I did not see him for forty-eight hours, when he had a temperature of 100 degrees. I did not see him at all after that, but he continued the guaiacol and eucalyptol mixtures steadily and a week later he came to my office, when he had a temperature of 100 or a little less; and had an abundant rose eruption over the abdomen. I ordered him to continue the this position. I have, however, great faith in the treatment when it can be begun early; even in the second week I think it will generally very favorably modify the course of the disease."

An extract from another letter from Dr. Dodge, dated April 27, 1895, is as follows: "All of the cases of uncomplicated typhoid fever that I have treated in this manner recovered in a much shorter time than such cases have ever done with me before. The two hospital cases that died were complicated, the one with pneumonia and the other with severe enteritis, as the autopsy disclosed.

"The fatal case that I saw in consultation with Dr. B., properly should not be included in your list, as he



Dr. Udell's Case No. 1.—Iva M., age 14 years. Date of admission, July 25, 1894. Treatment: gave alteratives and quinin during first part of sickness; began Formula No. 1 on the tenth day of disease.

mixture as long as he had any fever and I have not seen him since. The other case simply had fever that did not yield to quinin, but was aborted speedily by your treatment. Some might deny this case being one of typhoid fever, as there were no pathognomonic symptoms, but at any rate she had some kind of fever, attended with diarrhea and epistaxis. Quinin had no effect on the temperature, even in large doses, and the fever disappeared two days after the guaiacol mixture was begun. I think the system may be so impoverished by the toxins absorbed in the blood, that no treatment will avail to save the life of the patient, and the three fatal cases I have described may be considered as evidence supporting had been 'starved' by a homeopath for two weeks and had a profuse hemorrhage from the bowels before Dr. B. was called. He died within forty-eight hours of the time I saw him, and there was no time to get him under the influence of your medicine. Our efforts were principally directed to stimulation and to try to get him out of the state of collapse. Incidentally your formulas were administered but without any idea that it was a fair case to try them in. I merely reported it to you as an instance of the terrible condition in which we sometimes receive these cases. I also rather wished to warn you to dwell upon the necessity of giving your treatment early in the course of the disease, which you have done in

later papers. I found some who thought from reading your articles that you claimed any case might be cured, no matter in what stage the treatment was begun. I was well aware that you had not claimed any such thing, but I desired to call your attention to the fact that some persons had drawn that inference."

Dr. C. N. Udell, of Iowa, wrote me on April 19, 1894, seeking for an outline of my treatment of typhoid fever. This letter was answered in its turn on July 3. On August 25 I received a letter from which I quote the following:

"The first trial was in Case No. 1, Iva M., aged 14 years. The inclosed chart will show you the range of the temperature. This was rather a grave case with bad hygienic surroundings and poor nursing. I did not begin the antiseptic treatment until she had been sick nine days. She made a good recovery, but the case ran some weeks and could not be called aborted.

"Case No. 2, Frank B., was sick when I was called and I then diagnosed typhoid fever. He had the usual prodromic symptoms—with all the phenomena of true typhoid following. I put him on your formula No. 1, and continued that most of the time. In one week he was about well.

"Case No. 3, Mrs. C., was employed as nurse for Case No. 1, in the latter part of her illness. She is now sick with typhoid fever in rather a mild form; yet unmistakably typhoid fever. I think from the present indications, she will run the course in about fourteen days. Treatment: formula No. 1 is given most of the time; No. 3 when the bowels are too loose.

"I have been using the same treatment in cholera infantum with good results. I have procured what is supposed to be pure guaiacol and eucalyptol, but find it difficult to give this to children, the taste is so horribly bad. Some children strangle badly on it even in small doses. I begin to fear impurity. I believe your theory is correct."

Dr. Udell sent me on March 22 another report of cases. He says: "I will give a brief report of a few cases, selected from among those treated with your abortive treatment for typhoid fever. In the management of these, as well as other cases, I relied almost wholly on your prescriptions Nos. 1 and 3, giving a diuretic occasionally when required; also an occasional dose of bromidia when the patient was too restless to sleep at night.

"Case No. 4, A. D., male, aged 42 years, suffered with all the prodromata of typhoid fever for six days without treatment, with the exception of some domestic remedy. I prescribed R. No. 1 for three days; No. 3 for four days; and No. 2 on fourth day. Patient discharged on seventh day, with No. 3 to be continued at intervals of four or five hours for a few days. No relapse. Highest temperature was 103.4. No delirium or eruption.

"Case No. 5, J. C., aged 18 years, taken just as Case No. 4 was, with feeling of weariness, lassitude, constant headache, fever, rigors, foul furred tongue, anorexia, slight nausea, nose-bleed; some diarrhea, tympanitis and tenderness over the abdomen. I was called after the patient had been sick one week, and found that he had taken some cathartic pills. Prescribed R. No. 1 for three days; No. 2 on the third day; No. 3 for one week when the young man began to do light work. No relapse.

"Case No. 6, W. C., aged 20 years (brother of Case No. 5), with symptoms much the same, so he was treated the same as his brother. No further treatment after six days.

"Case No. 8, D. B., male, aged 21 years, brother to Case No. 7, and taken with the usual premonitory symptoms of typhoid fever. Had taken some cathartic pills on his own motion. I gave him Nos. 1 and 2, and then No. 3 for five days, and he was well, and able to begin light work on the farm. I let him eat anything and all he wanted.

"Case No. 12, Ellen B., female, aged 44 years. Had been sick three weeks with typhoid fever, under the care of another physician. The family and doctor were alarmed and were looking for perforation or fatal hemorrhage. I advised R. No. 1 every half hour for one day; then No. 3 every hour, unless the patient was resting well. Gave bromidia at night if the patient did not sleep. Improvement from the first dose of medicine. Patient sat up in bed on the fourth day of my treatment and was doing some of her own housework in two weeks. I insisted on this patient eating proper food regularly after the first week. Recovery complete. No relapse.

"Case No. 13, Ef. R., aged 23 years, was taken with chills, fever, headache, backache, dyspnea, nose-bleed, anorexia, very dark strong urine; a little blood passed from the bowel. Temperature soon ran to 104.4. Prescribed R. No. 1, with frequent alkalin sponge baths; and flushing the colon every day with an alkalin antiseptic wash. After two days, left R. No. 3, but the patient would not take enough to do any good. Gave very small doses of sugar of milk and was compelled to continue very small doses of No. 3. Patient was up and walked to the dining room on the fourteenth day. Took a relapse and was confined to her room for ten days longer. Continued R. No. 3 in small doses. Patient made a good recovery, but was somewhat fastidious about taking medicine; I could not call this an aborted case. Thus I have given a brief sketch of such cases as would be a fair sample of those treated with the 'Woodbridge method.' The cases I failed to render abortive were those who had endeavored to treat themselves for one or more weeks, or those in which my directions were not carried out according to orders. The one fatal case was doubtless beyond all earthly help when I was called."

On August 13, 1894, I replied to a letter of Dr. H. G. Critzman of Pennsylvania, giving a detailed account of my method of treating typhoid fever. He wrote me December 20, a letter from which I extract the following: "I have had eighteen cases of typhoid fever this summer and fall. My last case was discharged, cured, last week. In none of these cases was there intestinal hemorrhage, except the first, which I reported to you; and none have died. The most of these cases were not wanting in virulency. I have charts of them and the number of days under treatment was from fifteen to twenty-four. I find also that many of my patients had the disease a week or more before coming under my care. I can not agree with you in reference to the question of giving solid food. Temperature under your method of treatment often becomes normal before the ulcers are healed; care therefore should be used in the administration of solid food. I believe a perfectly clean and normal tongue is the indication for solid food. I found that guaiacol exerts no disturbing influence on any organ except in a few cases; an irritable

stomach rejected it and those cases gave me a little trouble for a while. I believe your antiseptic treatment is the rational treatment for typhoid fever. Under its use the course of the disease is greatly modified; delirium is rare; tympanitis is prevented; the tongue remains moist through the illness; and the intestinal tract is placed in the best possible condition for the healing of the wounds. I am certainly thankful that I discovered your articles in the JOURNAL."

(To be continued.)

IS DIPHTHERIA DOOMED BY THE DISCOVERY OF ANTITOXIN?

Read before the Colorado State Medical Society, June 19, 1895.

BY F. E. WAXHAM, M.D.

EMERITUS PROFESSOR OF LARYNGOLOGY AND RHINOLOGY, COLLEGE OF PHYSICIANS AND SURGEONS OF CHICAGO.

DENVER, COLO.

Probably, with the exception of Koch's tuberculin, nothing has so interested and excited the civilized world as antitoxin, the new remedy for diphtheria. Like all other new advances and discoveries in medicine, it has its advocates who claim it as a specific when properly and timely used, also its enemies who decry its use and proclaim it a huge fraud; others again who admit the value of antitoxin but claim that its dangers more than offset its advantages; still again there are others, and among them Virchow, who acknowledge the dangers of the new remedy and yet claim that the lessened mortality under its use more than compensates for the dangers and risks of its employment. From all this conflicting testimony it is difficult to estimate its true value, but at present date the evidence is decidedly in its favor.

The opponents of antitoxin point to the anatomic lesions found in animals dying during immunization; the changes especially observed in the spleen, liver, kidneys and lymphatics, and also to certain symptoms obviously following the use of antitoxin, the most important being nephritis, skin eruptions, enlargement of lymphatic glands and occasional high and fluctuating temperature. They assert with much reason that antitoxin should prevent rather than produce these lesions and symptoms. They also deny the value of statistics and say that the lessened mortality is due to a lessened virulence of the epidemic at the time of observation rather than to any specific effect of antitoxin. The claim, therefore, that diphtheria is doomed by the discovery of this, one of the most remarkable remedial agents of the present century, can hardly be sustained. If diphtheria were doomed it should no longer exist in those centers of population where antitoxin and other means of controlling the disease are best known and most employed. Diphtheria should no longer exist in Berlin, Vienna and Paris, but on the contrary it is just as prevalent in these cities, although the fatalities may have been somewhat reduced, as before the discovery of antitoxin.

The three great scourges of the human race have been smallpox, tuberculosis and diphtheria; the greatest of all has been smallpox; whole countries time and again have been ravaged and decimated by this disease, and yet while we have an almost certain preventive in vaccination, the disease has never been stamped out. Its ravages have been greatly lessened and an untold amount of suffering and death prevented, and yet the disease still remains and will continue as long as ignorance and superstition remain in the human breast. This being admittedly true of smallpox, with an almost unfailing and certain preventive, how much more true must it be of diphtheria, for which as yet we have no such panacea.

Antitoxin can in no way be compared to vaccination, for its effect is only temporary, lasting but a few weeks at most. Again, all cases of diphtheria are not applicable for treatment by antitoxin, and I submit that mild cases that would terminate favorably under ordinary treatment should not be subjected to the dangers of antitoxin treatment. Still, again, there are many cases, especially the mixed and septic cases, the most virulent and fatal, that are seemingly unaffected by this line of treatment.

Those who have followed closely the proceedings of the New York Academy of Medicine can not but be strongly prejudiced against antitoxin. Personally, I am convinced of the great value of this new remedy. I believe it is the best remedy that we possess in the treatment of a most dreaded disease, and yet I also believe that it has its limitations. Fancied security is often dangerous; to feel that diphtheria is doomed and that we have an unfailing remedy in antitoxin may lead us to overlook its dangers, to neglect sanitary measures, and to belittle other lines of treatment.

As cases at home are more interesting to us than cases reported at a distance, I beg to allude to the cases treated by antitoxin in Denver. These cases number twenty-one. Fourteen cases were treated by members of the antitoxin committee, appointed by the Arapahoe Medical Society, in conjunction with the attending physicians. Seven are reported to me by the Commissioner of Health, Dr. Munn, to whom I am under grateful obligation. Two cases were scarlatinal and should be excluded from the report, leaving nineteen cases, eighteen of which were proved to be true diphtheria by the bacteriologic examination, with three deaths.

The first death was in the case of an infant of nine months, suffering from surgical diphtheria following circumcision. Antitoxin was employed on the eighth day, and the patient died some five days later. The second case was an infant of seven months; antitoxin was used on the fifth day and the patient died one hour later. The third fatal case apparently recovered from the attack of diphtheria but died of pneumonia seven days after the introduction of the antitoxin. Whether the intercurrent pneumonia was due in any measure to the antitoxin treatment, I am unable to ascertain.

Admitting the value of antitoxin, believing in its efficacy as a most useful remedy, I would still assert that diphtheria is not yet doomed, but will still remain a most dreaded disease. Notwithstanding the new remedy, antitoxin, and its great value as a therapeutic agent, we will still have need of the most rigid sanitary precautions and preventive measures as isolation, disinfection and cleanliness. We shall still have need of all our resources, sanitary, medical and surgical.

One of the latest and most valuable contributions to the literature of antitoxin treatment of diphtheria has been written by Baginsky and Katz, of Berlin. After reporting a large number of cases treated, they conclude "that, while exerting a most favorable influence in the majority of the worst cases of diphtheria, yet antitoxin is by no means a cure all."

While expressing my conviction as to the great

value of antitoxin, while acknowledging the indebtedness of humanity, for the long and patient and scientific investigations which have resulted in the production of one of the most wonderful remedial agents of the nineteenth century, yet I submit that the affirmative side of this question remains to be proved, and that diphtheria, while it may be mitigated and its perils and fatalities lessened, will yet still exist and will still continue to claim its victims.

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

Fourth Annual Meeting held in New York Academy of Medicine, New York, Sept. 25, 26 and 27, 1894.

WILLIAM J. HERDMAN, M.D., President.

(*Continued from page 204.*)

A special report was presented by DR. ROBERT NEWMAN, on

CONSTANT CURRENT GENERATORS AND CONTROLLERS.

The attention of manufacturers has been called to the circular of the Standing Committee concerning primary stationary batteries. Some have even received two or three communications, but out of all notified, the Leclanche Battery Co., and Vetter were the only ones who have submitted their cells. But I have tested all which have come under my observation in other ways.

Some of the other battery companies have answered with the following results: Kidder Mfg. Co. says, "that we would be pleased to send you complete description of same—stationary battery—we fear their size would somewhat prevent their easy transportation." The primary batteries generating the current can be selected as to the wishes of the operator. The secondary batteries in preparation for test referred to Mr. Brown, of our committee.

Queen & Co., Philadelphia, March 20, 1894, that they "have nothing to submit for investigation." However, they advertise the Acme Portable Voltmeter, a new type for portable voltmeter for both alternating and direct current circuits. Why do they hold back the instrument if it is good?

The John L. Gish Ideal Rheostat Co., Jackson, Mich., March 25, 1894, that they have submitted their instruments to Dr. Herdman.

A portable alternating current-meter has been made by the General Electric Co.; it comes in 25 to 50 and 200 ampère sizes.

The result of batteries and cells investigated is as follows —Constant Current Batteries: Portable; Stationary.

The Vetter Dry Cell Portable Battery is a very complete one in itself, being nicely arranged and very convenient, having a milliampère meter attached and a rheostat. At first the battery worked very well and was thought to be a success—giving a soft even current—but after standing for a short time, on being tried, found scarcely any current at all. On a later trial found it to be in a much better condition. For a dry cell battery it is fair, but like them, can not be relied upon. If more electric power is needed, any number of wet cells may be added by attaching the extra cells to a wire on the case.

My assistant reports on the battery as follows: "The Vetter Dry Cell Battery I tested and found I could get just ½ milliampère with the 30 measure and 50 milliampères with the 300 measure using a closed circuit of cord. I took the instrument to pieces and found six or seven cells badly corroded and so, of course, it would work but little. The machine has been carefully handled and I see no reason for finding the instrument in the condition I did, if it only corrodes on being short circuited, which it has not to my knowledge, I being the only one using it. However, that is the condition I find, and it needs some new cells."

The Vetter is a nice piece of workmanship and is complete as a *portable* battery, but my experience is that *dry* cells are not reliable and the worst of all are the dry chlorid of silver cells with which I have had my worst experience.

Dry Chlorid of Silver Cell. I had a 50 dry cell Chlorid of Silver Battery on which the pole P, marked as positive was, on investigation, found to be the negative; notwithstanding my protest, the manufacturers insisted they were right. At last the error was acknowledged in a communication, Nov. 16, 1891, and the battery came back from the factory in Baltimore—the P. altered into an N.

After a 50 dry cell galvanic battery had been put in thorough order in Baltimore, I left it standing *as received* and later on, in a trial, found it would give *no current* at all. The battery was sent back to the factory and the manager acknowledging the inactivity only said: "It must have been used on short circuit"—and no redress given. I never received the battery back and lost it. I consider there is no reliance in a dry cell chlorid of silver battery; the E. M. F. is small and insufficient for electrolysis.

Stationary Batteries: the Waite & Bartlett, cabinet, galvanic and faradic; 40 cells—Leclanche cells.

Run from November, 1888, for three years until the end of 1891, in perfect order. Was used every day, often for hours, but mostly with light current. After three years constant use the cells were only filled and somewhat overhauled. In November, 1893, after five years, the cells were thoroughly repaired and new zincs put in. The cabinet is very convenient, easily handled while sitting, has reverser, interrupter, resistance and faradic battery. Milliampère meter is attached on top of case. I consider this cabinet most convenient for my use.

The measurement of cells has been made and reported on last year by Dr. Herdman as chairman of this committee with such care and accuracy, that scarcely anything more or better can be added. My own experiments as far as I could pursue the same without the necessary facilities and laboratory confirm Dr. Herdman's measures, and the following is only reported here by order of the chairman of this committee, serving as a supplementary report.

Generating cells—axo cells. (Leclanche Battery Co.) I have now in use the axo cells made by the Leclanche Battery Co., 111 to 117 E. 131st Street, New York, in both my Providence and New York office, which has given entire satisfaction for medical work. The axo has all the advantages of a sealed cell. The flange of the cup closes the jar and prevents evaporation, so that, when once put up, with care the cells may run almost a year without any attention. At the same time there is sufficient room for the escape of gases through grooves in the sides of the carbon. The electromotor force is 1.60. The internal resistance is 1 ohm.

Closed circuit measurements of one cell through the Whitney volt meter and Whitney ampère meter.

Vole Cell. (Leclanche Battery Co.) Warner gage 36; voltage 1.52; ampèrage 2.2.

Gonda Cell. (Leclanche Battery Co.) Warner gage 26.5; voltage 1.5; ampérage 1.95.

Sampson Cell. Warner gage 26.5; voltage 1.4; amperage 4.

Law Cell. (Regular.) Warner gage 7.5; voltage 0.9; ampèrage 2.9.

Mesco Dry Cell. Warner gage 17.5; voltage 1.4; ampèrage 2.

Edison-Laland Cells. Providence, R. I., Feb. 1, 1894. Present, Newman and C. E. Bourn. Six large Edison cells for galvano-cautery. Room 68 degrees F., 9 o'clock, A.M, Weston A. M. meter.

Rheostat in, gave 4 ampères. Rheostat all out, full current and strength of battery 8¾ ampères. Rheostat in to one-half, 5 ampères. Rheostat in 3½ ampères. Hence polarization. Jan. 18, 1894, 11 A.M. The same Edison cells—six—for galvano-cautery in series. Present, Mr. Hughes, C. E. Bourn and Newman. Weston's voltmeter. 3 cells in front; 2.75 volts; 3 cells in back row 2.75 volts; 6 cells together 5.14 volts. Temperature of room 63 degrees F.

Edison Small Cells. 50 cells galvanic battery. 25 cells, 22 volts; 25 cells (other), 22 volts; 50 cells (all), 44 volts.

Feb. 1, 1894, 10 A.M., room 70 degrees F. Weston's A. M. meter; 50 cells, Edison galvanic battery, 1 ampère. 40 cells, low tension gravity cells. Weston's A.M. meter ½ ampère. Jan. 18, 1894, Weston's voltmeter 33 volts.

The Wottin Transformer has to be investigated. Has been sent to Dr. Herdman. On an alternating current of 52 volts. It can be made for the Edison street current of 110 volts. They have no meter to measure. June 15, 1894. It heated all my platinum burners, some very heavy ones, made for testing more than for therapeutic use. It also heated well my galvano-cautery sound. It can be used nicely for illuminating. It will light two incandescent lamps, and at the same time run two fans or drills where the motors are suitable, and still supply the transformer.

Rheostat and Controllers, etc. The Vetter Rheostat is a very good instrument when weak currents are used. I have not found a better one. However, the disadvantages are, that at strong currents it may burn out; that on looking at it you never know if the rheostat is off or on. It must be

turned and an expert may get used to handling it, but it has no visible starting point and in a hurry you may deceive yourself, and give your patient a heavy shock, thinking the rheostat is all off when in reality it is turned on.

Willms' Current Controller. Has three patents, May 24, 1892, No. 475,529. The principle looks well, but it works irregularly; when it arrives at the last fourth and fifth pegs the current is suddenly interrupted and the needle of milliampère meter goes back immediately to zero, patient feels a shock, third peg needle runs up again. On April 13 Mr. Brown witnessed the same experiment. Several other irregularities are in the instrument. The fault is, the rubber walks easy and thereby drives the brass pegs below the graphite, causing an immediate interruption of the current. Again, the apparent nicety of the graphite being covered is an objection, because if any corrosion takes place the injury to the instrument is covered up and can not be seen and the irregularity can not be adjusted.

The commendable point in the Willms' rheostat is, that the instrument has a starting point fixed, and increases the current gradually in its circular movement, so that looking at the dial the operator knows how much of the rheostat is in or out, or at least is expected to be.

The same observations about the Willms' rheostat have been made by Dr. W. S. Watson, Riverview House, Fishkill-on-the-Hudson, New York, in a letter to Kidder. It has also been demonstrated to Mr. R. G. Brown, Drs. Gish and Herdman.

I annex here suggestions for more uniform investigations by a manufacturer, which I think are worthy of a perusal. They have been sent me by Mr. T. F. Livingston.

SUGGESTIONS FOR INVESTIGATIONS SENT BY A MANUFACTURER.

As to the electrical test for the cell necessary for therapeutic work, allow me to offer the following suggestions, which would prove, I believe, quite valuable in the matter of test:

The Society should note the extreme distance apart the electrodes are placed, and approximate the resistance, and note this as maximum resistance.

Assuming how close the poles are brought together, noting same as minimum resistance.

Averaging a point between the extremes as mean resistance.

Placing this mean amount of resistance in the series when the cells are tested.

Assuming the greatest number of hours per day, some part of which may be consumed by electric applications; noting this as maximum hours.

Assuming the least number of hours per day, some part of which may be consumed by applications, noting this as minimum hours.

Averaging the number of hours between the extremes as mean number of hours.

Thus you would have the average number of hours of the twenty-four, to close the cells through the resistance as noted above.

Again, taking the greatest length of time for one application, noting this as minimum time of application.

Averaging a point between the extremes as mean time of application. This is the unit of time of application expressed in minutes. You would then have the average number of minutes, of each hour of the twenty-four hours, to close and open the circuit, together with average resistance, thus placing cells in a condition similar to actual applications; calling upon cells to perform work, then allowing cells to recuperate.

REPORT ON SECONDARY BATTERIES

was presented by MR. R. G. BROWN, E.E.

On February 1, a personal letter inclosing a copy of the circular issued by this Association was sent to manufacturers and dealers in storage batteries, calling their special attention to this subject as outlined on page 5 of the circular. The letter was virtually an invitation to send in a sample battery for examination and test and included such information and data as was thought would be of assistance to the party addressed in the arranging of a suitable outfit.

The names and addresses are as follows:

Otto Flemming, 1009 Arch Street, Philadelphia.
Metcalf Storage Battery Co., 417 Myrtle Avenue, Brooklyn.
Franklin Electric Co., Passaic, N. J.
Wadell-Entz Co., 303 Broadway, New York.
American Battery Co., 188 Madison Street, Chicago.
C. B. Elieson, Mount Vernon, N. Y.
Electric Storage Battery Co., Drexel Building, Philadelphia.
Meyrowitz Bros, Twenty-third Street, New York.
Bradbury-Stone Electric Storage Co., 5 Grand Street, Lowell, Mass.
W. A. Vail, 136 Liberty Street, New York.
Pumpelley-Sorery Storage Battery Co., 70 South Clinton Street, Chicago.
Galvano-Faradic Co., 400 Fourth Avenue, New York.
Gibson Storage Battery Co. (W. F. Ford), 315 Fifth Avenue, New York.
Storage Battery Supply Co., Twenty-third Street and First Avenue, New York.
Syracuse Storage Battery Co., Syracuse.
Sorley Battery Storage Co. (Eastern Electric Light and Storage Battery Co.), 37 Market Street, Lowell, Mass.
Hirschmann Storage Battery, 17 Park Place, New York.
Union Electric-Bradley Storage Co., 45 Broadway, New York.
Stephen Miles Electric Co., 182 Elm Street, Cincinnati.
S. S. White Manufacturing Co., Philadelphia.
Jerome Kidder Manufact'g Co., 820 Broadway, New York.

The replies to this letter indicated an earnest desire to accept the proposition, and it was confidently thought at one moment that nearly a dozen outfits would be sent in, but in spite of a brisk correspondence and an extension of the date set for the commencement of the test, only four batteries arrived, namely, Franklin Electric Co., Passaic, N. J.; E. B. Meyrowitz, New York; Electric Storage Battery Co., Philadelphia, Pa.; Otto Flemming, Philadelphia, Pa.

Description of the outfits:

The Franklin Electric Co.'s battery is of the Planté type (illustrated on exhibit No. 1). The plate consists of a frame filled with alternated straight and corrugated strips of lead. No pastes or applied oxids are used, the active material being formed entirely of and on the plate itself. The formation of the peroxid on the corrugated strips cause them to expand and thus folding on themselves lock the peroxid firmly into place. The plates are separated by sticks of hard rubber and the whole held together by hard rubber bolts passing through the corners of the frames. The outfit submitted consists of two cells, each having a working E. M. F. of two volts and a capacity of 50 ampère hours. There is a sliding rheostat arrangement for controlling the current. The case and accessories of this particular outfit are decidedly crude, but the cells are of the company's standard type—it was sent in simply as a favor to your committee.

The Meyrowitz outfit is shown in the illustrations (exhibit No. 2). Like most of the dealers in physicians' supplies, Mr. Meyrowitz is not the actual manufacturer of the cells furnished in his outfits but supplies those made by the American Battery Company of Chicago. The type employed contains five plates—two positive and three negative, samples of which we have here (exhibits 3 and 4). The plate is made up of a series of horizontal strips of rolled lead, grooved on both sides and securely arranged in a frame of special composition not affected by the acids.

The plate is then submitted to the forming process which oxidizes the surface of the lead strips until the spaces between them are completely filled with the oxid. Thus the plate is made up of alternate layers of lead and active material—the grooved surface of the lead effectually keying the active material into place. The plates are separated by hard rubber combs and the whole bound together with rubber bands. (Exhibit No. 4.)

The outfit consists of two cells—each with a capacity of 40 ampère hours and an E. M. F. of 2 volts. It includes a current controlling device and a switch for throwing one or both cells into circuit.

Three styles are made:

No. 1, containing one cell and sold at $20.
No. 2, containing two cells and sold at $35.
No. 3, containing three cells and sold at $45.

The oufit of the *Electric Storage Battery Co.*—manufacturers of the chlorid accumulator—is shown in these illustrations (exhibit 5). Chlorids of lead and zinc are fused together in certain proportions and poured into molds—the plates so cast form the active material and of which we have here a sample (exhibit 6). It is a quarter of an inch thick, has grooves running horizontally and vertically on each side, and at each point where the grooves intersect there is a perforation. (Exhibit 7.) The plate is then placed in a larger mold—into which is poured a molten alloy of lead and antimony; in this manner a strong frame is cast around the squares of active material on both sides of the plate and the frames are joined together by the union of the alloy through each perforation. To "form" these plates they are placed alternately with plates of pure zinc in a trough containing a solution of dilute chlorid of zinc, thus making a

simple primary battery and the cells short circuited in groups. By this operation, the chlorid of lead is reduced to a pure metallic lead, and the zinc is dissolved from the surface of the plate, leaving it soft, porous and spongy, so producing a plate having a remarkably large surface of active material as compared with its weight. (Exhibit 8 is a sample plate as it came from the forming bath.)

This company's outfit consists of two 5 plate cells—each with a capacity of 50 ampère hours and an E. M. F. of 2 volts. The normal rate of charge and discharge is 5 ampères, but the battery is fully capable of being discharged as high as 20 ampères without injury. There is a switch for throwing the two cells in series or in multiple and a current controller. The three small binding posts on top are for the purpose of attaching a 2 volt lamp to be used to test the condition of each cell. The open circuit voltage of a cell is a poor indication of its exact condition, but with a 2 volt lamp one can tell very closely by the brilliancy of the light tho real condition of the cell. The cost of this outfit is $35; new positive plates cost $1.25 each, and negative 85 cents.

The Otto Flemming outfit is shown in this illustration (exhibit 9). Mr. Flemming does not make his own plates but employs those of the chlorid accumulator just described. He makes a specialty of providing an assortment of outfits to suit the various requirements of medical surgery. They range from one to twenty cells—details of which are to be found in this table furnished by the maker (exhibit 10):

D	C		B				A				Style.	
I	II	I	IV	III	II	I	III	II	I		No.	
6	30	10	12	8	6	4	6	4	6		In series.	Volts.
	6	2	6	2	2	2	2	2	2		In paral.	
4.8	14.4	4.8	14.4	9.6	14.4	28.8	132	88	44	22	Capacity in ampère hours.	
.9	2.7	.9	2.7	1.8	2.7	5.4	25.5	17	8.5	4.25	Maximum rate of discharge.	
5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	5¼	6½		
.75	2.2	.75	2.2	1.5	2.2	4	18	13	6	3	Maximum rate of charging.	
7½	8	7½ * .75	8	8	8	8	8	8	8	8		
1	3	1 * 5	3	2	3	5	24	16	8	4	Number of lamps.	When charging through 110-volt Edison lamps it will require.
32	32	32 * 32	32	32	32	32	32	32	32	32	Candle power.	
2¼ x2½	4¼ x2½	4¼ x2½	4¼ x2½	4¼ x2½	4¼ x2½	4¼ x2½	6¼ x6	6¼ x6	6¼ x6		Size of plates. Inches.	
2	1	1	3	3	3	3	2	2	1		+	Number of plates in each cell.
3	2	2	4	4	4	4	3	3	2		|	
5¾x6½x5½	13 x7½x 8	8½x7½x 8	12 x10 x 8	9 x10 x 8	11 x5 x 8	9 x5 x 8	7 x9 x11	7 x7 x11	7 x6 x11		Size of Case. Inches.	
8	30	16	42	26	20	16	38	30	22		Weight, complete at average. Pounds.	

* To be charged in series.

The outfit submitted consists of three 5 plate cells which are permanently connected in series and have a total E. M. F. of 6 volts with a capacity of 22 ampère hours. There is an ingenious rheostat arrangement for controlling both cautery and lamp. It is subdivided to a very fine degree, takes up little room and with excessive discharge there is no heating of the parts. This particular model is intended for those who desire a conveniently portable outfit for occasional work. Its capacity is sufficient to keep an endoscope lamp lighted for twenty-seven consecutive hours or a cautery knife heated two hours. It is sold for $30.

During the test which was carried on though April, May, June, July and August, the readings were made with Weston standard meters kindly loaned by the Weston Electric Instrument Company, of Newark, N. J., for this test. The batteries were short-circuited for a few moments from time to time, and when occasions offered were used in actual operations.

In conclusion, it may be added that the several types of cell described are well and favorably known in the electric field for their efficiency and strong mechanical structure and are employed very extensively in electric lighting, launch and traction work. The outfits submitted have performed all that was claimed for them; they are well made and with proper attention will serve a physician faithfully for at least five years without renewal of the plates.

DR. ELIHU THOMSON read a paper on

NOTES ON THE EFFECTS OF HIGH FREQUENCY ELECTRICAL DISCHARGES PASSED THROUGH THE BODY.

It is now some four or five years since the writer began experimenting with alternating currents of much higher rate of alternation or frequency than had up to that time been employed in lighting, and he published some notes concerning the physical effects and also the comparative physiologic effects of such currents, as determined by the late Dr. Tatum. This was almost simultaneous with accounts of work done by others in the same field, notably by Tesla and D'Arsonval, and a discussion arose as to the probable cause of the harmlessness of high frequency currents as compared with ordinary alternating or with continuous currents. The writer has never been satisfied with vague explanations, attributing the immunity to the skin effects or the flow of high frequency discharges almost wholly on the surface of a conductor instead of through its interior, nor with the suggested condenser effects, about which no consistent or complete exposition has at any time been forthcoming.

On the contrary, the very nature of the tissues of the body forbade the skin effect. The outside surface of the arm, for example, is fairly dry epidermis, which on account of its high resistance would prevent the passage of current, and the true dermal layer though conducting is of extreme sensibility, so that a concentration of current in the skin should rather enhance pain than annul it. That no condenser effect as such is the cause of the immunity is proved by the simple consideration that two persons may have each an arm connected respectively to the electrodes of a high frequency apparatus, while an incandescent lamp is held between them by the other hands, so as to complete a circuit of which the lamp is the middle. The lamp is lighted, though the actual potential of the source may be so low as not give a spark over more than a twelfth of an inch. The position of the lamp in the circuit forbids condenser action if the potential itself was not too low for such action.

Much absurd talk has been made in the newspapers over the ability of persons to withstand currents of hundreds of thousands or of millions of volts. It is a very old experiment to insulate a person's body and charge and discharge the same by sparks of even ten inches in length without special inconvenience. In this case the person becomes a condenser or charged conductor of very limited capacity, and the current of the charge or discharge is insignificant. Now, it so happens that if an insulated person be subjected to charge and discharge at a high frequency, say over 10,000 per second, and with a voltage of 100,000 or 200,000 there is a comparative absence of sensation during the reception and reversal of charges. Here again the current is limited, though its heating effect may be such as to bring to full brilliancy an incandescent lamp of 110 volts and 10 candle power, if such lamp be interposed between the person and the course of electric charges.

The writer has from time to time conducted experiments that prove beyond question the conduction through the body of currents or discharges, the heating effect of which in a carbon filament, whether the same be inclosed in a vacuum or not, is equal to that which is given by continuous currents of from .3 to 1.5 ampere.

There is little or no sensation experienced in such passage provided the surface of contact of the electrode with the skin be not too restricted. It is needless to mention that with ordinary alternating or continuous currents the passage through the arm of so small an amount as 20 to 50 milliampères may be quite painful.

The apparatus used in the conduct of my experiments may be described as follows: ordinary alternating currents of 125 periodicity are passed through the primary coil of a special transformer or induction apparatus, the secondary of which is wound to give currents of about 20,000 volts. The secondary terminals have attachments to the two sides of a large condenser whose capacity may be changed at will. Its construction is such that it resists perforation of its insulating dielectric layers. Each dielectric layer is composed of two sheets of built up mica about one-eighth of an inch thick each. Between these double layers the foils are placed and the whole is covered with oil contained in a wooden box or receptacle. This condenser discharges across two air spaces or gaps through which a strong air blast from proper jets is

kept blowing. The gaps are formed between two sets of brass balls, and arrangements are made to connect to the outer ball of each pair any part of a circuit or path which it is desired that the condenser discharge shall take. A plain coil circle or loop of wire, bare or insulated, may form this discharge path. According to the self-induction of this loop and the capacity used in the condensers will depend the rate or frequency of oscillation of the discharges of the condenser crossing the air gaps. A large condenser gives a slower rate, as does also a loop or discharge circuit of larger area or self-induction. Hence, it is easy to make the discharges rapid enough to represent rates of 30,000, 50,000, 100,000 oscillations per second, as desired. It must not be supposed that in such an apparatus we can obtain a continuous unbroken set of waves of current like that of an ordinary alternating current, but of high rate. On the contrary, what we do get is a broken set of discharges in which the time occupied by the discharge itself, oscillating while dying out, is small compared to the periods of rest or no discharge. This is owing to our original source of current used in charging the condenser, which only brings the latter up to the discharging potential, say a few hundred times a second. Had we at hand, instead, a source of continuously sustained potential to charge our condensers, we could obtain continuous waves of high period without the dead spaces or times of no discharge. It is, however, a difficult matter to obtain such a source as is required on a sufficiently large scale for use. If, however, the source of current is of sufficient energy, and the capacity of the condenser not too large, the frequency is high and the dead spaces occupy a smaller fraction of the tital time. Some time ago the writer devised an apparatus from which he obtained high frequency discharges from continuous current sources, (such as from a 500 volt railway circuit) but he has not had time enough to apply this method on a large enough scale as a prime source. The continuous current source gave, however, a perfectly continuous unbroken set of waves and not a succession of discharges. It therefore resembled a high frequency dynamo in its effects. The apparatus, however, as used by the writer, with alternating currents, is shown in the diagrams accompanying this paper. It is an induction coil whose primary is fed by ordinary alternating currents of 75 volts, giving about 20,000 volts in the secondary. K is the condenser attached to the secondary; G, G, are the spark gaps or discharge spaces; J, air jets or blast; L, is the discharge loop or coil. No measuring instruments, such as ampère meter or volt meters, exist which are applicable to the rapidly reversing currents, and none are therefore present.

In applying currents to traverse the body, it is convenient to bridge the discharge loop at various points as from *a* to *b* and the nearer these points are to the discharge gaps G, G, the more intense are the effects obtained. Thus, if from *a* to *b* a shunt be made by the body, taking hold at *a* by one hand and at *b* by the other, a certain part of the high frequency discharge is shunted through the body across the loop, and if an incandescent lamp, requiring, say, 100 volts and .3 to .4 ampere is made part of this shunt with the body, it is not difficult to bring the lamp to full incandescence without experiencing any discomfort, and, in fact, without sensation of any kind except perhaps a slight warmth at the wrists. It is only necessary that the surface of metal or damp sponge grasped in the hand be not too restricted. Five or six square inches of contact surface may suffice. If the contact area be unduly restricted there will be a tingling or burning sensation experienced, but only at or near the surface involved. There is no muscular contraction and no sensation whatever above the wrists. The writer has indeed lighted an 8 candle incandescent lamp of 100 volts, .3 ampère, through the little finger by capping it with a metal tube covering the outer half of its length, as one terminal, with the surface of the hand as the other. Also through the two hands laid together an amount of current equal in heating effect to more than 1 ampère of ordinary current has been passed with only moderate sensation, mostly of warmth, at the contact surface of the skin. Results similar to these have been made known through the recent work of D'Arsonval, using similar means for exciting the high frequency currents, and he has more fully examined the different effects or absence of effect upon the animal body. The writer has lately given some time to studying some of the more obvious points involved in the action of these currents, but has not concluded the line of experiments which have suggested themselves. A brief outline of some of the work may be of interest at this time.

The first point to determine was the virtual resistance of the body from hand to hand and to secure, if possible, a passive substitute resistance which could be used instead of the experimenter himself in further tests where needed. Such resistance substitutes were made by taking boxes about two feet long, one foot wide, and six inches deep, and filling them with sawdust dampened with a weak salt solution. Copper plate electrodes with short heavy cables attached could be inserted into the sawdust at any point in the length of the boxes. Now, placing the body in circuit with an incandescent lamp burning at a given brilliancy it was easy to reproduce the same brilliancy in the lamp by using, instead of the body, the sawdust box and adjusting its electrodes; all other conditions remaining the same in each experiment. A measurement of resistance of the box was made at once after the substitution by passing through it a current due to 106 volts, and measuring the current which passed, gave a resistance of 750 ohms. A similar substitution of a water resistance gave 650 ohms, so that approximately the virtual resistance of the body of the experimenter could be taken at 700 ohms. The contact with the palms of the hand was made by metal surfaces tightly grasped and having about six square inches contact with the palm and fingers.

By substituting a water rheostat for the body, and adjusting it to have the same resistance as indicated by the lamp brilliancy, the increase in temperature of the water during a given time could be made the means for determining approximately the rate of actual heat energy delivery to the body, assuming it to act simply as a resistance, an assumption which, so far at least as the conversion of current energy into heat is concerned, is doubtless well founded.

It was found that the rate of heat delivery to the water was equivalent to 59 watts, or about 2,600 foot pounds per minute. This figure is confirmed by a calculation based upon the continuous current strength required to bring the lamp used to the same brilliancy, and the resistance of the body as found by the substitution method above described. Energy = C2R, or (.3 amp.) 2 x 650 ohms = 58.5 watts, lamp current water resistance.

These results, 59 and 58.5, are near enough to indicate that the high frequency current in lighting the lamp does not, as some have claimed, owe a part of its effect to any bombardment or vacuum action. It appears to act as a simple resistance. It can, therefore, be used as an indicator of the heating effect of the current passing in any of these experiments. The significance of this delivery of heat energy is plain. Heat energy may be delivered to the body or a portion of it without exciting the muscles or sensation. Whether this method would, for the purpose of the physician have any advantage over the application of warmth externally is not yet understood.

The writer in conducting these experiments often found a sensation of heat or warmth at the wrist when the discharges were such as would give the effect of .5 to 1 ampère in the lamp. This local effect would naturally follow from the comparatively high resistance of the bony mass at the wrist and the small amount of other tissue, together with the relatively smaller section of conducting material.

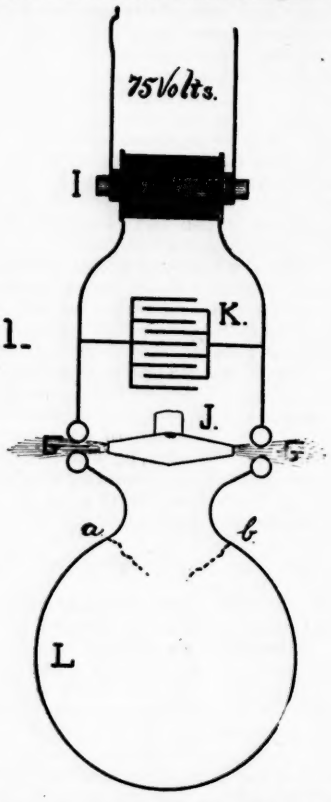
To get rid of this effect and at the same time to be enabled to increase the current passing through the body, the metallic electrodes were replaced by glass jars partly filled with weak brine in which the hands and part of the forearm could be immersed. The liquid in the jars was connected by metal plates to the terminals of the source. With an immersion to about four inches above the wrist it was found that a lamp current equal in heating effect in the lamp to 1.5 ampères continuous current could be passed through the body without producing any muscular contraction or sensation other than a warming or feeling of warmth in the forearm near to the surface of the liquid electrode or bath. After the experiment, which was continued for ten or fifteen seconds, and repeated several times in immediate succession, there was noticeable a slight feeling of rigidity or sense of friction or weight, difficult to describe, in the tissues of that part of the forearm which had been immersed. This feeling passed off in five or ten minutes and was only just noticeable at any time. This same feeling was confirmed by another observer. The rate of delivery of energy to the body in this case may have been over 800 watts or more than 1 horse power, assuming that the virtual resistance of the body fell nearly a half, owing to the immersion of the arms in the liquid electrodes.

On account of the dead spaces and the nature of the discharges in these experiments, the maximum of current must be high. It is possible that the greater wave amplitude may give 10 ampères or more as a maximum. Examination of spark discharges in the circuit by a revolving mirror would probably render possible a more definite determination as

to how far this estimate approaches the truth. If time permits, the writer proposes to examine the discharges in this way so as to determine the relation of the dead spaces to the time occupied by the discharges, etc.

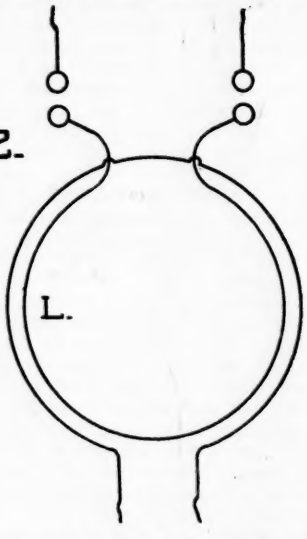
In some of the experiments, instead of shunting the discharge loop or coil as described, the arrangement was modified by using a secondary or parallel loop or coil, the inductive relation of which to the first or primary could be varied. This was found to be a most convenient arrangement, Fig. 1.

FIG. 1.



With a single circle of heavy wire, the diameter of which circle was about three feet, constituting the primary or condenser discharge loop, a secondary of three turns of heavy okonite-covered wire coiled to equal diameter with the primary, was sometimes used, Fig. 3, as the source of high frequency discharges to be applied in the tests. By moving the secondary into more or less exact parallelism with the primary the force of induced secondary currents could be regulated at will.

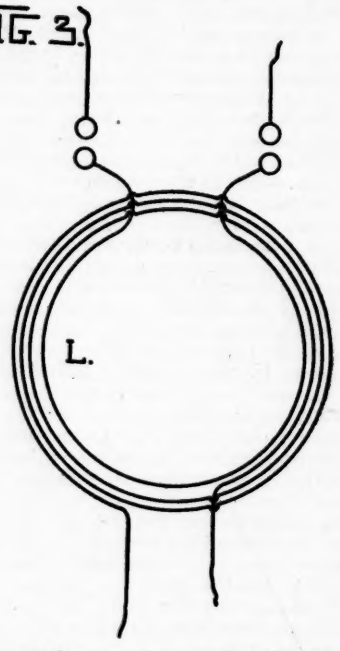
FIG. 2.



From the terminals of such a secondary, connections are made to the electrodes used in conveying the currents into the body.

By bringing the terminals of such secondary to a distance of about three-fourths of an inch apart, a torrent of heavy brilliant sparks, accompanied by a very loud roar would be obtained, yet, without altering the conditions such secondary terminals could be bridged by the body, or short-circuited, so to speak, by the hands, with impunity, provided only that the contact surface was not too restricted. It was this coil which when circuiting through the arms immersed in salt solution gave a current of heating effect equivalent to 1.5 ampères as above described. The lamp used in this case was rated at 25 volts, 3.5 ampères, and was brought to redness by the current passing through it and the body in series. The brilliancy being carefully noted could be reproduced by an ordinary current of 1.5 ampères. So far, then, the experiments show that it is not to any peculiar action or distribution of the currents physically that the comparative harmlessness of high frequency currents is due, but rather that the true cause is physiologically, depending on some peculiar relation of nerve excitation to certain stimuli. In other words, nerve matter and muscle seems to be insensitive to such high rates of reversed discharge, and if there be any effects they are certainly different from those experienced at low frequencies, and more different still from the effects of continuous currents.

FIG. 3.



The normal mental operations and voluntary muscular action were not interfered with to any discoverable extent while the current passed, nor were the involuntary actions affected so far as determined.

In the above notes the writer has endeavored to condense the results of those of his experiments which have had especial reference to the passage of high frequency currents through the body, which experiments have tended to show the true nature of the phenomena in their physical aspect, and has not attempted to discover or confirm the existence of varieties of physiologic effect, or their absence, except incidentally to the other work.

The subject is certainly one of great interest, and one which, from the standpoint of the electro-therapeutic physician deserves the fullest investigation. What will be the limit to the increase of current which may be sustained without injury is not yet known.

(*To be continued.*)

Emulsion of Castor Oil.—M. Klein, a physician of Kharfa, Syria, reports the following method in use by the Arabs for disguising the disagreeable taste of the oil; fifteen or twenty grams of castor oil are poured into a glass of milk; the mixture is heated, being stirred with a spoon, and in a few minutes there is a perfect emulsion of the oil which can be sweetened with syrup of orange. The oil administered in this manner requires less quantity to produce its effects: thus 15 to 20 grams are sufficient to purge an adult.[1]

[1] Bulletin Medical, July 6, 1895.

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SATURDAY, AUGUST 10, 1895.

UNIVERSAL ANATOMIC NOMENCLATURE.

Scientific men are gradually coming to a general understanding in regard to the universal scientific language. For years, science has demanded a language common to all nations, and the two languages most favored have been French and English. The spasmodic study of Volapuk amounted to little and the movement in favor of modern Greek seems already dead. In the meantime, scientific bodies go on making a uniform nomenclature in their respective lines. It is neither French nor English, but Latin. Year by year, then, Latin is becoming stronger, and the world's scholars are working to keep it free from corruption. Our last Pharmacopœia is a striking example of the modern effort toward correctness in nomenclature. This effort shows grammatical and etymological changes from former nomenclature, all of which, being more exact, will not require change in future.

The latest advance in this direction has been made by the German Anatomical Society, an account of which we translate in full in another column from the *Deutsche Medicinische Wochenschrift* of July 4, 1895.

The Society appointed a commission composed of some of the most learned anatomists in Europe, and they have now presented their report, after eight years' labor, and although a similar attempt was unsuccessfully made by GASPARD BAUHIN in 1621, we feel reasonably sure that the work of this committee will be generally adopted. All anatomic names have been considered, and they have given Latin designations only, duplicates being dropped.

We believe that this plan is infinitely superior to the one pursued now, whereby every language has its own designation for most of the separately named parts of the body.

Notwithstanding our individual preference for the French language, as that tongue on many accounts best adapted to become the universal language, with a minimum expenditure of time on the part of those acquiring it, yet it must be admitted that the Latin language, no longer being alive, is changeless; beside that, until the eighteenth century there were few scientific books in any tongue but Latin. A return to Latin in its purity would place the twentieth century international medical literature in line with almost all that has preceded it.

So far as the study of anatomy is concerned, it is manifest that the adoption of the nomenclature, as proposed, will greatly simplify it, and at the same time afford a common nomenclature for medical students the world over.

In the history of medicine there are no more important chapters than those relating to anatomy, and in its nomenclature we have the voice of antiquity perpetuated from the days of Alexandrian supremacy down to those of the Ecole de Medicine.

THE INDEX MEDICUS AND THE BRITISH.

The London *Medical Press* recites with regret that English editors and others are to be the losers in the discontinuance of the *Index Medicus*. Our English friends appear to feel the loss so badly that it is a wonder some one has not thought it worth while to "pass around the hat" and collect the comparatively small sum that is needed, from "the other side," to keep the machinery in motion. The following paragraph contains the gist of an article appearing in the literary department of the *Press:*

"The *Index Medicus* will cease to be the finger-post of medical writers and reference-hunters, unless subscriptions to the amount of £400 per annum are guaranteed by this country to the American publisher. This gentleman, it may be mentioned, announced two years ago that 'he did not see his way any longer to continue losing $2,000 a year *for the sake of the profession*,' and we are quite in accord with him that—although an invaluable guide to the few—as the great bulk have shown such a lack of interest in it, they do not expect him to bear the loss for 'their sake.' In 1893 we made an appeal to the profession, hoping to keep the venture alive. MR. MACALISTER, Librarian of the Medico-Chirurgical Society, is now doing the same, but we fear the *Index Medicus* will go the way of all non-paying commercial enterprises."

Another English medical journal urgent for the continuance of the *Index Medicus*, says: "The yearly cost of production is about £1,000, and it is proposed to raise this sum by 200 subscriptions of £5 each. The United States, it is estimated, will supply 120, Great Britain 60, and the continent 20." In other words, this country is accounted to be good for as much as Great Britain and Europe combined. Whether this is to be considered as a tribute to the greater finan-

cial resources, or to the higher standard of intelligence of the American medical profession, it is equally gratifying and very flattering.

We are still of opinion that the AMERICAN MEDICAL ASSOCIATION should take up this matter, effect a satisfactory arrangement with the accomplished editors, and be responsible for the publication of the work.

ON THE INFLUENCE OF SHELL-FISH IN THE SPREAD OF CHOLERA.

DR. R. THORNE-THORNE, of the Local Government Board of Great Britain, has investigated the occurrence of cholera in England in 1893. His report touches upon the cases occurring at Grimsby and vicinity, and holds that the consumption—or reception, at least, at their homes—by persons taking the disease, of oysters or other shell-fish is involved in the history of those cases.

The trade in shell-fish in and near Grimsby is very large, and the arrangements of the traffic are such that the oysters and mussels are exposed to sewage, both on the "beds" and in the storage-docks. Cockles, mostly consumed locally, come from several "beds," one of which is stated to be "exceptionally exposed to the influence of Grimsby and Cleethorpes sewage." Some of these shell-fish are not often eaten raw; others again notably oysters, are largely consumed without cooking, and when so eaten the removal from the shell of the liquid in which the oysters lie is a thing that is generally somewhat carefully avoided. The state and sources of the "waters" in which the oysters are grown or kept come, therefore, to acquire importance in so far as the public are concerned; and having regard to the significant indications afforded by some of the cholera histories of last year, DR. THORNE can not avoid the conviction that shell-fish from Cleethorpes and Grimsby must, in some cases, remain under suspicion as having contributed to the diffusion of the disease.

More positively than that, DR. THORNE declines to speak. He closes by saying: "But one thing is certain. Oysters and shell-fish, both at the mouth of the Humber and at other points along the English coast line, are at times so grown and stored that they must of necessity be periodically bathed in sewage more or less dilute; oysters have more than once appeared to serve as the medium for communicating disease, such as enteric fever, to man; and so long as conditions exist, such as those with which the oyster trade of Cleethorpes and Grimsby is shown to be associated, conditions which may at any time involve risk of the fouling of such shell-fish with the excreta of persons suffering from diseases of the type of cholera and enteric fever, so long will it be impossible to assert that their use as an article of diet is not concerned in the production of diseases of the class in question."

NATURAL HISTORY OF THE KUMBH FAIR CHOLERA OUTBREAKS.

SURGEON-CAPTAIN HERBERT furnishes[1] from Bombay a contribution to the natural history of the cholera outbreaks at the Hardwar fairs on which he bases what he modestly styles the following "suggestions:" 1, the fouling of the water of the Sacred Pool or of the Bhun Ghora tank, or of both, by an unusually large proportion of bathers to the quantity of water available may render these waters a very favorable medium for cholera development, and so determine the origin of far-reaching epidemics; 2, the growth of the organism may be assisted by unusually hot weather; 3, virulent cholera elsewhere in India may be effective from the character or quality, rather than from the quantity, of the virus carried to Hardwar.

These "suggestions" are at variance with the conclusions arrived at prior to 1892, from observations which definitely associated the outbreaks of cholera at Hardwar with but one condition—the overcrowding at the Kumbh fairs. HERBERT shows that the attendance in the "big cholera year, 1892," was only about one-half the average accumulation of an ordinary annual fair; the season, however, was not only one of the driest—rendering it impossible to keep the sacred waters as fresh as in the previous year, when there were nearly four times the number of pilgrims present and no outbreak—but it was also one of the hottest, on record. Concerning this previous year—the Kumbh Mela, 1891—HERBERT says that while the exemption from cholera attack was then ascribed to the very elaborate sanitary arrangements, for the first time in force, the evidence is strong that it was due rather to a severe and prolonged winter season with a resulting high stage of water. The complete inefficiency of the sanitary arrangements was conclusively demonstrated the following year—the "big cholera year." He adds: "There were no extraordinary sanitary precautions in 1885, when the number of pilgrims was the same as in 1891; yet cholera did not break out. The winter was severe, as in 1891, and the river consequently high. And there have been other Kumbh and Adh Kumbh years—*e.g.*, 1855, 1861, 1873, with neither sanitary precautions nor cholera outbreaks. It is now fairly well recognized that the essential sanitary requirement for the prevention of cholera spread here [Bombay] is a free supply of fresh water, especially at the most crowded Melas, in very dry years, and when the disease is unusually prevalent elsewhere in India."

It is quite apparent that SURGEON-MAJOR HERBERT believes in an increased potentization of the cholera organism when sown in an exceptionably favorable culture material; that to this increased morbific potency is due the fact that the cholera which spreads

[1] London Lancet, July 27, 1895.

from the fairs is not that which is carried to them; that the new growth may acquire powers beyond those of ordinary Indian cholera, capable of spreading rapidly and certainly over country where cholera is comparatively seldom seen and of being the origin of European pandemics. The corollary of this hypothesis would be the gradual attenuation of new growths in less favorable culture media, under less favorable climatic and meteorologic conditions, until there resulted the entire loss of morbific potency and the dying out of the pandemic.

CORRESPONDENCE.

Letters to my Hospital Internes, Past and Present.

By Casey A. Wood, M.D., of Chicago.

London, July 1, 1895.

Gentlemen:—Undoubtedly there are some forms of service which must ever leave the recipient in the debt of the donor. In looking back at the work done for me by you, during my attendance at Cook County Hospital, the Alexian Bros., the Emergency Hospital and the Hospital of the Post Graduate Medical School it occurred to me that I might at least acknowledge certain obligations of this kind by recounting some of my experiences during a short trip abroad. I shall endeavor to avoid the style of the medical guide book and beg to assure you that I will speak only of those men and those things that came under my own personal observation. I might also explain that, although this visit to the English and continental clinics has been a hurried one, its value to you is possibly somewhat enhanced by the fact that I had gone over more leisurely on two previous occasions, and at an interval of several years, practically the same ground.

The London hospitals have not altered much since my last experience of them. The student has not much to gain from a short stay in the British capital, partly on account of the great distances that must be covered in going from hospital to hospital, and partly because the average Englishman does not take kindly to the stranger until he has become acquainted with him after a proper introduction But for the man who will settle down for six months or a year and work hard, excellent teaching and numerous opportunities are at the disposal of the visitor. There are admirable post graduate courses, conducted by the best men in London, on all medical and surgical subjects, but it is rather fatiguing to hurry about from one hospital to another, miles apart. Some day these isolated teachers may come together, as with us or as in Vienna, at a common center, and then London will compete on more than even terms with her continental rivals.

These objections do not apply with the same force to ophthalmology or otology. The student, advanced or otherwise, can hardly wish for more or better opportunities than are to be had at the Royal London Ophthalmic Hospital (Moorfields, E. C., three daily clinics, 9 A.M. to 3 P.M., operations eleven to seventeen and Westminster Ophthalmic, Charing Cross, 3 daily clinics, 1:30 to 4, operations two to three). I do not say that other excellent institutions do not also furnish numerous opportunities for work, because large daily clinics are held at the Central London Ophthalmic Hospital (Gray's Inn Road, W. C.) South London Ophthalmic Hospital (near the Elephant and Castle) and in connection with many of the general hospitals, but at the two special institutions first mentioned from forty thousand to fifty thousand new patients are yearly admitted. In that overwhelming tide of ophthalmic disease, fed by the whole country round about, every possible type and variation of ocular trouble can be studied. It is a comparatively easy matter to attach one's self at Moorfields to the service of Nettleship, Lang, Silcock, Morton, Gunn, Lawford or Couper, or at the Westminster Hospital to the clinics of Jaler, Hartridge, Cowell, Dodd, Donald, Gunn, Griffith and several others. After a month or two of probation it is possible to obtain almost complete charge of patients, to do minor operations and to discuss with the chief of the clinic, matters that arise in connection with the conduct of their cases. At Moorfields, instruction on the use of the ophthalmoscope (unusually good, each course six weeks, plenty of cases, fee 2 guineas) is given three times weekly by Gunn, Silcock and Lawford. Classes in refraction are conducted by Mr. Lang (excellent, one month each, 2 guineas) while Mr. Morton gives an instructive course (six weeks, 1 guinea, material from all the clinics) on external diseases of the eye every Friday at 1 P.M. These courses are held during the winter season and tickets are to be had from the secretary at the hospital.

For beginners, Mr. Phillips, the refraction assistant, conducts, when requested, private classes which are, in my opinion, superior to anything to be had on the continent. Indeed, all the continental clinics—especially those in Vienna—are conspicuously weak in courses devoted to the study of refractive errors and muscular anomalies. Mr. Morton also gives an excellent operative course (private, six lessons, 2½ guineas) which is very popular with students. Pigs' eyes and the mask are employed for operations on the globe; pigs' heads for operating on the extrinsic ocular muscles and the lids.

These excellencies in the way of instruction are completed by work in the laboratory under the supervision and help of a very genial man, Mr. Marshall. His predecessor, Treacher Collins, has done and is still doing a great deal of valuable original work and, mainly in consequence of his efforts, the museum possesses by far the best anatomic collection in the country.

I was interested in a plan for using the electric light in the examination of eye patients. As you are aware, my objection (which I had vainly endeavored to remove by various devices) to this light was the difficulty of quickly regulating its intensity so that it could be lowered or raised like gas. Mr. Lang has perfected a plan whereby this can be accomplished and we can now dispense with gas—a decided advance, especially on a hot summer's day in a stuffy dark room.

The study of otology and laryngology is not so satisfactory to the student in London as that of ophthalmology. The London Throat Hospital (Golden Square, clinics every afternoon and evening) with Wolvenden, Hovell and Bond, is perhaps the best known and where, all things considered, one gets nearest the patients—whose name is simply legion. To obtain privileges of any value in this direction it is, however, necessary to take out a ticket of attendance (3 guineas for six months, 5 guineas perpetual, from the secretary) and to wait for a vacancy on the staff of clinical assistants, if there be none at the time of registration.

Dr. Dundas Grant, Mr. Lennox Browne and others hold daily clinics, (beginning at 2 P.M. and lasting until evening, fees 1 guinea a month) where the student may see a large number of ear, throat and nose cases. At irregular intervals lectures are given on otologic and laryngologic subjects. I fear it will be a long time before London is able to hold out inducements to students of otology, and the kindred specialties, equal to those so freely offered by Vienna or, though in a less degree, even by Berlin.

I regret that I was unable to attend the clinic of Mr. Jonathan Hutchinson—a name claimed equally by all departments of medicine and surgery. I am told that every London hospital, whether devoted to general surgery, ophthalmology, diseases of the lungs or what not, furnishes its quota of obscure cases for review by this truly remarkable man. Such fathers of our art should live forever, and one may well wish for a continuance of a life already so replete with useful years.

One of my missions in England was to investigate the subject of the color sense. In my opinion we have as yet, no theory that satisfactorily accounts for all the color phenomena, physiologic and pathologic, commonly met with, and I hoped to find light upon this obscure matter in the work of Mr. Lovibond of Salisbury, who has been engaged in investigating color values and "chromometry" for twenty years past. I have long felt the absurdity of scientific men using such terms as "canary yellow," "magenta," "grass green," "Prussian blue," etc., as their most definite expression of a color sensation. In his search for universal color standards, Mr. Lovibond was confronted with the difficulty of finding a *pure* white, but at last settled upon a compressed surface of finely powdered lime sulphate as giving the nearest approach to white. When colors are viewed through a tube or box, from which all light is excluded, the slightest difference between them can be readily observed if the colored objects be uniformly illuminated. This, the principle of Chribret's chromophotometer, enables the observer to add, in Mr. Lovibond's instrument uniformly graduated yellow, red and blue tinted test glasses to the white side of the apparatus until it exactly resembles the colored object under examination. When both objects appear exactly alike, the glasses added to the white side are the color measure of the color or shade under examination. The result is always given in, and every color can be resolved into, terms of red, blue and yellow—according to the Lovibond scale. Thus a colored powder is found to be composed of 1.4 standard units of red, 0.9 standard units of blue and of yellow 3.7 units, or a certain fluid (beer, drinking water, oil) is found to be 0.8 red and 0.50 yellow.

Not only have we in this scheme a universal standard of color, but other uses to which the "tintometer" is put ought to interest every medical man. It has been found that the amount and kind of adulteration in most foods and commercial products, as well as the impurities commonly found in drinking water and other fluids can be determined by the deviation, measured by the tintometer, from the normal tint of the pure article. Instead of making a laborious and complicated *chemic* examination of the suspected compound, its color value is determined in a few minutes. Such a chromometic examination is usually found to answer all the purposes of a quantitative analysis. In this way the tintometer is now employed in England and to some extent abroad, by all sorts of commercial houses and it is also used with great success by the health departments of cities for the ready detection of impurities and adulterations in milk, water, beer and other foods. *The slightest departure from purity whether in food or in any other product, is at once shown by a measurable and corresponding variation in color.*

As scientific men the subject of color-music ought to interest you. The July number of the *Nineteenth Century* contains an article dealing with this matter—an attempt to convert musical tones into corresponding color harmonies. I remained one day longer in London that I might attend a concert in St. James' Hall where upon a large canvas beautiful displays of color combinations were given as an interpretation of the music rendered by a good orchestra. Just *how* this was accomplished I could not discover but, *a priori*, it does not seem opposed to our idea of the conservation of energy that sound waves and the cerebral sensations they produce should be convertible into those of color.

PARIS, July 14.

Owing to my acquaintance with the American medical colony in Paris, I was able with their courteous help, to gather many items of interest which would otherwise have taken a much longer time to collect. Drs. Evans of Chicago, Bergeson of Merrill, Wis., and Jehm-Prume of Montreal, are at work here and express themselves as greatly pleased with the opportunities for study in all departments of medicine and surgery. The fees, unlike Vienna, are quite nominal (often excellent courses are free) and every stranger (in contrast to London and Berlin) is welcomed without the least introductory formality.

A students' number of the *Presse médicale* is issued every December and is the best medical guide to Paris I could find and, although intended for undergraduates, is a help to the visitor.

The *Institut Pasteur* (Rue Dutot, 25, open to visitors at 11 A.M., apply to the concierge) was, as you know, built and endowed by subscriptions from all parts of the world and its most useful work, it seems to me, is done in the fine laboratories and research rooms of the main building. There are half a dozen of the former under the care of salaried chiefs of departments who also instruct students, and over twenty-four of the latter given up to advanced workers who are conducting original investigations. The general laboratory courses (50 francs for two months, most of the material free) are said to be the best in Europe. The research rooms are let for the insignificant sum of 50 francs a month and the Institute furnishes all the ordinary apparatus and materials.

The animal rooms contain over one thousand birds, guinea pigs, rats, rabbits, etc. In this appropriate way does France make a generous return to those foreign countries that subscribed money for building the Institute. Pasteur has his private apartments in the buildings, but since the illness of the chief the management of the Institution has fallen entirely into the worthy and competent hands of Dr. Roux. The city of Paris presented them both with medals and a sum of money a few days ago.

Among the most important work done at the Institute and the Children's Hospital is that in connection with diphtheria—by Marmarek. He finds that the disease is not always the result of the diphtherica bacillus, so-called, alone, but that that microörganism is, in many cases, associated with others, notably the streptococcus, and the symptoms may be mixed phenomena due to a composite infection. In certain instances the systemic poisoning may be chiefly a streptococcus intoxication. If this be true, we have an explanation of the irregular action of Behring's heilserum; antitoxin is powerless in a case of diphtheria largely due to poisoning by the streptococcus. Marmarek consequently proposes not only to regulate the dose of antitoxin by the proportion of diphtheria bacilli present in the exudation, but to give doses of streptococcus toxins when that coccus is found. He expects to have the antidote ready for general use in a month or two.

Marmarek is of opinion that the chief danger to which the tubercular patient is exposed is a secondary infection of his lesions by streptococci.

I was also interested in the investigations of Cenarelli in typhoid fever. Most animals can not, under ordinary conditions be inoculated with the disease, but he found that this immunity practically disappears and that they exhibit all the characteristic lesions of enteric fever when they are ill-fed, kept in filthy, badly ventilated quarters or exposed for some time to sewer gas before receiving the typhoid poison. The inference is that human beings are much more likely to resist this form of intoxication if they live hygienically and in a healthy neighborhood—a doctrine taught by our fathers before the days of bacteriologic laboratories. There is a public hydrophobia clinic connected, as an outdoor department, with the Institute, where from eighty to ninety patients are daily treated; the average treatment lasts fifteen days and the method is just the same as that carried out in Chicago by our own Dr. Lagorio. By the way, Chicago is the only Pasteur station except, I think, Havana and New Orleans, marked on the large map of North America at the Institute. I could not discover why New York, with Gibier's station, had been omitted.

I saw the original Pasteur filter, invented by Chamberland, one of the department chiefs at the Institute, and am inclined to think more highly of it than I did of those put on the Chicago market. It is used here for the separation (under pressure) of their toxins from the various microbes. As you are aware, the filter is practically a porcelain cup, dense enough to separate—to a bacteriologic demonstration—even the smallest organism from contaminated drinking

water. I suspect, however, that regular boiling and cleansing of the porcelain cylinder and its attachments would be a useful proceeding in the case of a filter daily employed in the purification of Chicago water.

Some Remarks on Alleged Degeneracy.

ORAN, SCOTT Co., Mo., July 27, 1895.

To the Editor:—This word does not apply to the profession at large (or as a whole). Doubtless there are many physicians who have lost their standing and good name and have ceased to study and improve, but the profession, as a whole, is on gaining ground. Doctors are wiser than ever before. There are more great men in our ranks to-day than ever before, and there are men who know more of medicine than was ever known to physicians of the past. Some of our wisest men undertake to write after their mental powers have begun to weaken, and in this sense may be called "decaydents." Others through sickness or disease may have lost their balance—but to say the profession is losing ground, and that our predecessors were a long way ahead of us is a mistake.

Many of us follow strange gods, but as a whole we are all right. There are many cranks among us on many different subjects, but this is not new; it was always so. Our ability to see ourselves as we are, shows strength instead of degeneracy. Our ability to correct past errors shows mental growth. Our greater control over disease and our ability to cure many maladies that were considered incurable by our fathers also shows progress. Oh, yes; we are all right. No need of the calamity howler in our midst. We are in line with our brethren in other avocations. We are keeping up with the times. Some of us may belittle ourselves by playing hog or dog, but the grand old army marches steadily along, conquering enemy after enemy.

Let not the editor of our JOURNAL join with those who would try to discourage us. Lend your aid in another direction. Never allow yourself to think we are degenerating. The apparent degeneracy is among those who have lost sight of duty and have made medicine a trade. These fellows are not so much degenerates as knaves—they never looked upon medicine as other than a species of merchandise. They, to some extent, have lowered our standing with the laity but have not taken, nor can they take, our lofty and well-earned position from us, and as Dr. Pusey says: "Medicine is not the poor relation of any scientific family."

I am glad the editor joins me in my theory of inebriety, and has a proper appreciation of the so-called *gold cures*. When I was spreading myself out, condemning this fad, only a few men said to me, "you are right;" but if the editor joins me, I shall not feel that I am so much in the minority.

Another source of joy to me is the fact that the AMERICAN MEDICAL ASSOCIATION is beginning to set down on the proprietary medicine man. I have had my say on this subject, but somehow editors are a little tenderfooted along this line. These parasites have a firm hold and are hard to unloose, but they will finally have to go. Truth, right and honest dealing must prevail. Secret methods of preparing medicines have no place with us, and the man who refuses to tell anything he knows that would benefit humanity can not last. His time is short. The patent nostrum vender can "hoodoo" the laity and swindle them out of their money, but no man nor set of men can continue swindling us without being exposed. We are "on to" the ready remedy maker's racket, and ere another decade shall pass, his name shall be "Dennis" or "Mud" in "box-car" letters. Very respectfully submitted,

W. D. HOWLE, M.D.

The Nu Sigma Nu Fraternity.

CHICAGO, Aug. 7, 1895.

To the Editor:—Any one who has read the scholarly and very entertaining address published in last week's issue of the JOURNAL, pages 177–180, delivered at Minneapolis, Minn., June 3, by Dr. John L. Irwin, President of the Grand Council of this honorable order, can not but sincerely applaud and at heart, at least, extol every sentiment uttered by that worthy gentleman.

For one, I have personally been much interested and delighted at reading his able address; and while I have not the pleasure of knowing Dr. Irwin, nor the honor of being a member of the Nu Sigma Nu, yet knowing something of this fraternity and the character of its members, I am free to state that I am a stanch advocate of its cardinal principles and teachings. It is my misfortune, perhaps, that my name has not, long ere this, been enrolled in this noble brotherhood of our profession. But after all, is it not our duty as honorable men and conscientious physicians, while we live, to follow the precepts of the order of Nu Sigma Nu, whether we are members of this honorable order or not? To sum up the ritual of this order—or rather to summarize Dr. Irwin's address—we should observe and live up to the Golden Rule; to practice charity without ostentation, educate ourselves in our profession, and observe toward each worthy professional colleague and toward all mankind the virtues of brotherly love, purity, honesty, justice, a laudable ambition, temperance and fidelity. As I understand it, these are substantially the teachings in the ritual of Nu Sigma Nu.

If we courteously observe these principles in our professional career, to my mind it does not seem that we have left much undone to "worry" about in the discharge of our duty toward our fellow man.

In Chicago, there are at least three Chapters of the Nu Sigma Nu Fraternity, and I am personally acquainted with nearly every "frater" of the order in this city, for all of whom I entertain high personal esteem. To these gentlemen, and to the members of the Nu Sigma Nu everywhere, I extend my sincere congratulations in having so able and efficient an executive of the Grand Council of their fraternity.

In conclusion, I thank the Great Physician of us all, as well as Dr. Irwin and the JOURNAL for publishing the address, and for being privileged to read it.

I remain sincerely,

LISTON H. MONTGOMERY.

PUBLIC HEALTH.

Subsidence of Smallpox in Chicago.—There were only 2 deaths from smallpox in Chicago during the month of July last, as against 51 for the corresponding month of 1894. There were three cases remaining in hospital at midnight of the 6th inst., as against 117 on August 6 last year.

The Odors of Paris.—The prefect of police has given orders to have a certain number of his inspectors detailed to investigate the sources and causes of the disagreeable smells which incommode the Parisians, especially during the evening. As the number of establishments to be inspected is estimated at 8,000 the work is not yet done. However, from the evidence accumulated it seems probable that most of the noxious odors are caused by the manufacture of bone black.[1]

Anti-Vaccinists Not Popular with Politicians.—Before the recent elections in England, the Bristol Anti-Compulsory Vaccination Society approached the various parliamentary candidates for Bristol and the adjoining divisions to ascertain their views on the vaccination question. It is reported that the "cold shoulder" which they received was so unanimous that they could fix on no candidate whom they could support and so abstained from any participation in the campaign and in the election.

[1] Le Progres Medical, No. 25, 1895.

Statistics of the Paris Pasteur Institute.—In the first three months of this year, 345 persons were treated at the Institut Pasteur. Of this number, 23 were bitten by animals proved to have rabies experimentally; 224 were bitten by animals found to be mad after examinations by veterinary surgeons; 98 were bitten by suspected animals. Of the animals, 324 were dogs, 15 cats and one ass. One patient died before the end of the treatment. St. ——, a man of 48, from Glasgow, was bitten March 8; treatment began on the 11th. There was but one bite but it was deep, situated in the inferior third of the fore-arm, on the anterior surface. On March 23 the patient, after taking a hot bath, rode on the outside of an omnibus; caught cold, rabiform symptoms appeared in a few days and he died April 1.[1]

Scavengers Without Health Officer's Permit.—A regulation of the Health Department of the city of St. Paul prohibited "licensed persons" from doing certain scavenger works "without a permit first obtained from the Health Officer." It nowhere appeared what license was required, or that any persons were prohibited from doing such work without such license. So says the Supreme Court of Minnesota in the case of city of St. Paul v. Lawton, decided July 2, 1895. The defendant in the case was charged with having violated such regulation by doing such work without such permit. It was not alleged or proved that he was a licensed person. Under these circumstances, the court holds that a conviction can not be sustained.

Diphtheria Antitoxin Treatment in Germany.—The results of treatment in 10,240 cases of diphtheria in the German hospitals and in private practice were recently reported to the Society for Internal Medicine by Professor Eulenberg. Of this number 5,790 were treated with the antitoxin serum, with 552 deaths—a mortality of 9.5 per cent. for all ages; 4,450 were treated by other methods with 652 deaths—a mortality of 14.7 per cent. By ages, the mortality was, for those under 2 years, 21.7 per cent. by the antitoxin treatment, 39.7 per cent. without; between 2 and 10 years of age the mortality was 8.8 and 15.2 per cent. respectively; for all cases over 10 years of age the mortality was 4.1 per cent. under antitoxin and 8.8 per cent. under other methods. Professor Eulenberg again called attention to the importance of early recourse to the antitoxin; used within the first forty-eight hours the mortality was only 4.2 per cent.; delayed beyond this period the mortality was increased to 16.8 per. cent. These figures must certainly be regarded as a vigorous addition to what Virchow has called the "brute force" of the numerical argument.

Milk Supply of Rome.—The very thorough sanitary regulations as to milch cows which have been in force for some time as to Rome proper have been recently extended to cover the whole commune, which includes most of the surrounding Campagna. All cows and other animals which supply milk in the suburbs and Agro Romano are subjected to rigorous examination by competent veterinarians; healthy animals, capable of furnishing good milk are marked on the horns and licenses issued to the owners. Only milk from such inspected and licensed animals may be sold. The inspections are repeated every year in April, May and June and at such other times as the authorities deem necessary; diseased animals are condemned and slaughtered; those selling milk below the fixed standard are refused license, and cows suspected of tuberculosis are subjected to the tuberculin test at the owner's expense and destroyed if found diseased. The Rome correspondent of the *British Medical Journal* says the extension of these regulations to the whole commune is a great boon to the inhabitants, since all cows which supply milk to the city will now be under inspection, and this will prevent the sending of tuberculous cows from Rome proper into the Campagna whence they might continue to supply the city.

[1] Bulletin Medical, July 7, 1895.

Disinfection of Tubercle.—The *Public Health* quotes from the *Revue d' Hygiéne* an approximate valuation of pyroligneous acid as follows: "Goriansky, of St. Petersburg, has been experimenting to determine the relative value of wood-tar and some of its products. The most active appears to be wood-vinegar (pyroligneous acid), which kills tubercle bacilli in cultures in an hour, in sputa in two hours, and the streptococci and staphylococci in the latter in three hours."

Diphtheritic Specimens by Mail.—According to *Public Health*, the French postal authorities have removed restrictions formerly placed upon the sending by post of the membranes of diphtheria. The precautions that must still be observed are quite elaborate. They may only be sent in a thick glass bottle, tightly corked and sealed, surrounded with wadding and put into a solid metal box, which in its turn is to be inclosed in a well-fitting wooden box. This must be legibly addressed and labelled "Diphtheritic false membranes," and may only be sent to the Institut Pasteur or to one of the recognized provincial laboratories.

New York State Board of Health.—At a recent meeting of this Board, Dr. Daniel Lewis, of New York city, was unanimously elected President to succeed Dr. Florence O'Donohue. Dr. Lewis is an ex-President of the State Medical Society. Dr. Frederick W. Smith, of Syracuse, appointed by Governor Morton as successor to Dr. O'Donohue, sat with the Board. The Board received an opinion from the Attorney General, holding that Dr. O'Donohue could continue as a member of the Tuberculosis Committee for the year, although his term of office as a member of the Board had expired. Dr. Lewis is also an ex-President of the county medical society, editor of the Medical Directory of New York, and member of other medical organizations. He was a strong candidate of the "anti-code people" for appointment as Health Officer of the Port before Governor Morton appointed Dr. Alvah H. Doty to that office. He has now, however, landed on his feet in this very important position, which is destined to have more power for good than has been the case in the past.

City is Not Liable for Acts of Board of Health Employes.—Where the duty of keeping the streets clear of putrid and other substance offensive to the sense of smell, and which tends to imperil the public health devolves, under a city's charter, upon the Board of Health of that city, the Supreme Court of Georgia holds, in the case of Love v. city of Atlanta, decided Dec. 4, 1894, though but recently reported in 22 Southeastern Reporter 29, that the functions of this department of the city government being governmental, and not purely administrative in their character, it follows that if, in the discharge of such functions, and in the discharge of the duties devolving upon this department thereunder, a private citizen is injured by the negligence of one of its servants in and about such work, no right of action arises against the city. But it is to be observed, says the court, that, in order to exempt a city from liability, it is not sufficient to show that the particular work from the negligent performance of which by the servants of the city, a citizen was injured, was being done under the direction of the Health authorities, but it must be shown that the particular work so being done was connected with or had reference to, the preservation of the public health. If the Health Department were engaged in clearing away or removing obstructions from the street which in no way endangered the public health, the responsibility of the city then would rest upon the rule of liability for the work connected with repairing and keeping in order the public highways. It can make no difference in principle as to the character of the agents employed in the discharge of this duty with respect to the public health. The principle of non-liability rests

upon the broad ground that in the discharge of its purely governmental functions, a corporate body to which has been delegated a portion of the sovereign power is not liable for torts committed in the discharge of such duties and in the execution of such powers. It can be no more liable because of the fault to select competent drivers of garbage carts than a city could be held liable for failing to elect a wise, conservative and discreet mayor.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—FOREIGN.

Antwerp: July 1 to 6, 1 case, 1 death.
Buda-Pesth: July 8 to 15, 3 cases, 1 death.
Cairo: June 25 to July 1, 4 deaths.
Calcutta: June 15 to 29, 36 deaths.
Glasgow: July 6 to 13, 10 cases.
Guayaquil: June 29 to July 19, 9 deaths.
Liverpool: July 6 to 13, 1 case.
Madrid: July 8 to 15, 5 deaths.
Montevideo: June 22 to 29, 2 cases, 1 death.
Nogales: July 13 to 27, 3 cases, 2 deaths.
Odessa: July 6 to 13, 2 cases.
Prague: July 6 to 13, 1 case.
St. Petersburg: June 29 to July 6, 4 cases.
Trieste: July 6 to 13, 3 cases, 1 death.
Warsaw: July 6 to 13, 1 death.

SMALLPOX—UNITED STATES.

Louisiana: New Orleans, July 20 to 27, 1 death.
Michigan: Detroit, July 22 to 29, smallpox reported; Battle Creek, July 20 to 27, 2 cases.
Missouri: St. Louis, July 20 to 27, 1 case.
New York: Brooklyn, July 27 to August 3, 1 case.
Texas: Eagle Pass, August 3, 55 cases, 3 deaths.

YELLOW FEVER.

Cuba: Cienfuegos, July 21 to 28, 2 cases at the Municipal Hospital. Other cases in town. Havana, yellow fever increasing. Sagua-la-Grande, July 20 to 27, 1 case.
Mexico: Vera Cruz, July 18 to 25, 13 deaths.

CHOLERA.

India: Bombay, June 26 to July 2, 1 death; Calcutta, June 15 to 29, 36 deaths; Madras, June 22 to July 5, 3 deaths.
Russia: Volhynia Government, May 26 to June 8, 79 cases, 20 deaths.
Turkey: Constantinople, June 20, 2 cases, 1 death; Tarsus and vicinity, June 9 to 29, 41 cases, 34 deaths; Adana, June 10 to 29, 180 cases, 105 deaths; Sis, June 10 to 29, 87 cases, 58 deaths; Hatschni, June 10 to 18, 9 cases, 6 deaths; Pajast, June 16 to 29, 17 cases, 6 deaths; Mesis, June 17 to 29, 27 cases, 8 deaths; Karatasch, June 17 to 29, 89 cases, 44 deaths; Kara-Isdali, June 17 to 24, 17 cases, 4 deaths; Jumurtalik, June 18 to 24, 1 case, 1 death; Bulanik, June 21 to 22, 5 cases, 5 deaths; Messina, June 28 to 29, 3 cases, 2 deaths; Marasch (Vilayet Aleppo), June 10, 2 cases; June 18 to 30, 25 cases, 17 deaths; Djabul, June 26 to July 1, 15 cases, 7 deaths.
Arabia: Mecca, June 9 to 14, 17 deaths; no new cases from June 15 to July 1; Taif, June 19 to 21, 24 deaths. (Also 17 cases and 16 deaths among 906 Arabian pilgrims who had arrived at Camaran on board the S. S. *Memphi.*)

SOCIETY NEWS.

American Electro-Therapeutic Association.—The American Electro-Therapeutic Association will hold its fifth annual meeting at the College of Physicians and Surgeons, of Ontario, in Toronto, Canada, on Tuesday, Wednesday and Thursday, Sept. 3, 4 and 5, 1895.

DR. EMIL HEUEL, Secretary.
352 Willis Avenue, New York city, U. S. A.

Minnesota State Medical Society.—The twenty-seventh meeting of this Society was held at Duluth, Minn., June 19 to 21. The following officers were elected for the ensning year: President, Dr. Frank Allport, Minneapolis; First Vice-President, Dr. J. H. Dorsey, Glencoe; Second Vice-President, Dr. E. Y. Chilton, Howard Lake; Third Vice-President, Dr. D. N. Jones, Gaylord; Secretary, Dr. Ignatius Donnelly, St. Paul; Treasurer, Dr. Richard J. Hill, Minneapolis.

American Association of Obstetricians and Gynecologists.—The eighth annual meeting of this Association will be held at Auditorium Hotel, Chicago, Sept. 24, 25 and 26, 1895. The preliminary program is as follows: 1, President's annual address, J. Henry Carstens, Detroit. 2, Relation of pelvic suppuration to structural changes that may occur in the Fallopian tubes, A. P. Clarke, Cambridge. 3, Nephrorrhaphies, George Ben Johnston, Richmond. 4, Detached fibroids, George H. Rohé, Catonsville. 5, A clinical contribution to lateral displacements of the uterus, Edward J. Ill, Newark. 6, Appendicitis, A. Vander Veer, Albany. 7, Intermediate treatment of puerperal sepsis, A. B. Miller, Syracuse. 8, Kraurosis vulvæ, a contribution to its pathology and therapeutics, H. W. Longyear, Detroit. 9, Report of three recent cases in gall bladder surgery, Edwin Ricketts, Cincinnati. 10, Subject to be announced, H. E. Hayd, Buffalo. 11, Intestinal obstruction following peritoneal operations, A. H. Cordier, Kansas City. 12, Subject to be announced, S. Y. Howell, Buffalo. 13, Cure of tubal distension without laparotomy, F. A. Glasgow, St. Louis. 14, Subject to be announced, W. B. Dorsett, St. Louis. 15, Subject to be announced, C. C. Frederick, Buffalo. 16, Hysterectomy in bilateral diseases of the appendages, giving remote results, Florian Krug, New York. 17, Discussion: Vaginal hysterectomy *vs.* Abdominal section for pus tubes. (*a*), title unannounced, (affirmative,) X. O. Werder, Pittsburg. (*b*), when shall hysterectomy accompany bilateral removal of the appendages? Reuben Peterson, Grand Rapids. (*c*), pathologic and surgical contra-indications of the vaginal route in dealing with puriform diseases of tubes and ovaries, Joseph Price, Philadelphia. (*d*), title unannounced, (affirmative,) Geo. H. Rohé, Catonsville. 18, Discussion: Eclampsia gravidarum. (*a*), etiology, Frederick Blume, Allegheny. (*b*), pathology, George F. Hulbert, St. Louis. (*c*), title to be announced, W. H. Taylor, Cincinnati. (*d*), prophylaxis, H. W. Longyear, Detroit. (*e*), puerperal convulsions *vs.* Insanity, W. P. Manton, Detroit. (*f*), treatment, J. M. Duff, Pittsburg; A. H. Wright, Toronto; Thomas Lothrop, Buffalo. 19, Exhibition of various types of rectal papillæ, R. T. Morris, New York. 20, Subject to be announced, E. Arnold Praeger, Los Angeles, Cal. 21, Ruptured interstitial pregnancy, L. H. Dunning, Indianapolis. 22, Has gynecology received just recognition as a specialty? M. B. Ward, Topeka. 23, Indications for operation in puerperal sepsis, L. S. McMurtry, Louisville. 24, Pneumo-peritoneum, James F. W. Ross, Toronto. 25, Subject to be announced, J. B. Murphy, Chicago. 26, Subject to be announced, Charles A. L. Reed, Cincinnati. 27, Subject to be announced, M. Rosenwasser, Cleveland.

The regular program will be issued September 1.

J. HENRY CARSTENS, President.
WILLIAM WARREN POTTER, Secretary.

NECROLOGY.

LEVI D. MILLER, M.D., of Newton, N. J., died July 21. He was one of the oldest and best-known physicians in Sussex County, and was a graduate of the College of Physicians and Surgeons, New York, in the year 1855. He practiced medicine for twenty-seven years, was surgeon of the Fourth New Jersey Regiment in the late war, a member of the Grand Army and Legion of Honor, and secretary of the Sussex County Medical Society.

EZRA GRAVES, M.D., of Amsterdam, N. Y., died July 1, 1895, aged 56 years. He had served as coroner of Montgomery County, and also as city physician of Amsterdam. He was a graduate of the Buffalo Medical College, of the class of 1865. A widow survives him.

WILLIAM C. JARVIS, M.D., professor of diseases of the throat at the University of the City of New York, July 30.——Henry Shimer, M.D., of Mt. Carroll, Ill., July 30, aged 65.——Walter C. Overstreet Jr., M.D., of Monmouth, Ill.——Solomon C. Salter, M.D., of Lena, Ill., August 1, aged 64.——J. W. DeHoog, M.D., of Chicago, August 1.——C. Plummer, M.D., of Wooster, Ohio, July 27, aged 74.——Harlow Williams, M.D., of Centerburg, Ohio, July 27.——Sheppard Lowrey Van Valzah, M.D., of Milton, Pa., July 28, aged 59.——L. S. Zeiner, M.D., of Easton, Pa., July 27.

MISCELLANY.

Dr. S. Weir Mitchell of Philadelphia, has been honored with the degree of LL.D., conferred upon him by the University of Edinburgh. As he has this title from another university, he is now, indeed, a double LL.D.

Large Charitable Bequests at Hartford.—The will of Mrs. Sarah Tuttle of Hartford, Conn., gives $10,000 to the Old People's Home, $5,000 to the Hartford Hospital, $5,000 to the Hartford Orphan Asylum, $6,000 to the Larrabee Fund, $2,000 to the Union for Home Work, and $1,000 to the Church Home.

Condensed Milk Swindlers.—A recent report by Dr. Bernard Dyer, Public Analyst, and Mr. Cassal, made to the *British Medical Journal* shows that of seventeen samples examined, fourteen are prepared entirely from skimmed milk. It is a source of pleasure to note that of the brands of milk examined none were from American manufacturers.

A New Professor of Bacteriology in the University of Minnesota.—F. F. Westbrook, an instructor in bacteriology at Cambridge University, England, has been elected to a similar position in the College of Medicine and Surgery University of Minnesota. His duties will be assumed with the completion of the new laboratory building in October.

College of Physicians and Surgeons.—Dr. Bayard Holmes, Librarian of the College of Physicians and Surgeons of Chicago, requests all authors who have reprints made of their articles to send a copy of each to the Library, 813 W. Harrison Street, Chicago. Each reprint will be put in a stiff cover and treated in the catalogue as a book.

The Neanderthaloid Man of Java.—The discovery in Java, by Dr. Dubois, a surgeon in the Dutch-Indian Army, of the remains of prehistoric man has now been fairly well discussed by the anatomists of two continents. Prof. A. S. Packard, of Dartmouth College, has given in the *Independent* a digest of the opinions, concerning this discovery, by some of the chief of the authorities in anthropology.

Can Correct Registration of License.—Where, instead of registering his license as a physician with the county clerk, as required by law, a physician filed it with the Board of Health, the general term of the New York Court of Common Pleas holds (Mayor v. Bigelow, June 3, 1895) that due registration made after suit had been begun to recover the penalty imposed for a failure to make proper registration, but before trial, was a defense to such action for the penalty.

University of Pennsylvania.—This institution has invited Dr. John S. Billings, U.S. A., to take its professorship in hygiene. It is stated that he has accepted the offer to take the position before many months, after he shall have completed his mammoth undertaking, the Index Catalogue of the Army Library. It is reported that a subscription paper is in circulation, for the benefit of Colonel Billings, as a substantial recognition of his labors in the interest of medical science.

An Enterprising Midwife.—A French contemporary[1] clips the following "ad" from *L'Independance Bretonne*, which shows the thrifty spirit of the French peasantry: "Mdlle. Guezennec, oyster culturist at Lezardrieux, has the honor to make known to the public that her oysters will be sold in the Halls of St. Brieue every Friday. There will also be a depot in the Hall of Guingamp the first of next April. Moreover, Mdlle. G. always practices her profession of midwife of the first class and places herself at the public's disposal."

Postponed to 1896.—It has been decided by Dean Smith of the Yale Medical School that the lengthening of the course shall not take place this year as was originally the plan, but will go into effect September, 1896. This fall's entering class will be the last to take a three-years' course; beginning with the class entering in 1896 a four-years' course will be required. Several important changes are announced in the faculty of the Medical Department of Yale: Dr. Charles Bartlett, Dr. Louis De Forrest, and Dr. H. L. Swain have been added to the list of professors, and Assistant Professors T. Osborn, H. B. Ferris, and Graham Lusk have been promoted to the positions of professorships in full.

[1] Le Progres Medical, July 6, 1895.

Reports of Committees.—The *British Medical Journal* of July 27 is largely devoted to the reports of the regular and special committees of the British Medical Association, intended to be presented at the annual meeting. It appears that the regulations for the conduct of annual meetings require that all reports of the committees of the Association shall be printed in the *Journal* before the annual meeting. Our own ASSOCIATION might wisely adopt this plan, the benefits of which are so obvious as scarcely to need enumeration. One point in its favor is that by this plan every member has ample opportunity to become familiar with the reports, and to prepare intelligently for their discussion should he so desire. Notices of motions are also similarly printed in advance in the *Journal*.

Hansen's Bacillus in the Blood of Leprous Patients.—Fischiella has instituted a series of experiments to determine under what conditions we may find Hansen's bacillus in leprous blood. He has arrived at the following conclusions: (*a*), positive result in blood from an incision or puncture near a leprous tubercle; (*b*), a uniformly negative result in blood taken at some distance from the leprous manifestations; (*c*), negative result in leper's blood submitted to treatment by Koch's lymph; in the blood of tuberculous patients treated by Koch's lymph we may, on the contrary, find the tubercle bacillus, which ordinarily is not found in the blood; (*d*), by injecting leprous bacilli into the blood of rabbits the author found that they disappeared about ten hours after inoculation.[1]

"Struck the Keynote."—Commenting editorially on what it styles the "most excellent article of Dr. Julius Kohl, of Belleville, Ill.," the Physician of the Past, the Present and the Future—A Definition of His Social Position, published in this JOURNAL, June 22, 1895, the *Medical Review* of the 3d inst. says: "Dr. Kohl advocates a thorough classical education and examination by the State before a student is admitted to any medical college. A student equipped with the knowledge required by such an examination, is too intelligent to allow himself to be 'taken in' by the bogus medical colleges so that the latter would be compelled to close their doors. The idea is a most practical one, and Dr. Kohl does by no means stand isolated in his views upon this subject. He has struck the keynote and suggested the only remedy against bogus colleges, the cancer of the medical profession. He has applied his ax to the roots of this malignant growth."

Tuberculosis of the Cecum.—MM. Pilliet and Thiery state that tuberculosis localized in the cecum may be disseminated in several directions and it is useful to know these in order to judge the contra-indications for operating. 1, by the peritoneum; this may be slow, localized and of but little gravity; the peritoneum enveloping the tumor is generally adherent to it, and we know from this that the tumor and the intestinal wall form one mass. 2, by the intestines; the majority of the lesions are descending; the maximum is found at the end of the cecum, thence tapering off into the colon; the small intestine, contrary to the usual opinion, is but rarely affected. 3, by the ileo-cecal glands, when we observe sometimes an infection of the mesenteric and meso-colic glands, sometimes an infection of the vertebral glands

[1] Rev. Int. de Med. et Chir. Prat., 1895, No. 11.

reaching to the diaphragm; exploratory laparotomy will enable us to ascertain which condition is present. 4, by the iliac glands; this form is usually accessible to the touch and constitutes a contra-indication.[1]

Veterinary Surgeons must Prove Qualification.—A physician, surgeon or dentist, it has been said, undertakes in law to supplement his reasonable care and honest endeavors with ordinary professional skill. The same is true, according to a decision of the Supreme Court of Michigan rendered July 2, 1895, in the case of Conkey v. Carpenter, of a veterinary surgeon, because it requires education to be able to treat diseases of dumb animals as well as diseases of men. There is no presumption of qualification. A "quack," without education or experience, employed upon the representation that he is a qualified veterinary surgeon, can not recover for services. Professional employment stands upon a different basis from other businesses. It is, therefore, the common practice, when a professional man sues for services as such, to prove his qualification. This is done by showing his admission to practice under the statute, his graduation from some reputable college or school, or his study and experience, if his right to practice is not regulated by statute.

Pneumonia a Disease.—By the terms of a certain insurance policy, if the death of the insured was from "pulmonary disease," the beneficiary could recover only $32.50; otherwise, she would be entitled to $65. The insured died of acute lobar pneumonia, conceded to be a pulmonary affection, but denied by the beneficiary to be a disease. Strangely enough she found an "expert" to testify and a judge to decide that a mortal pneumonia was not a disease. In reviewing the case on appeal, the general term of the Court of Common Pleas of New York city and county says (Kiernan v. Metropolitan Life Insurance Company, June 3, 1895) it hardly consists with judicial gravity to argue against a proposition of which the absurdity is self-evident, which involves at once an affront to common sense, a misconception of the plain sense of a plain word, and a contempt for the uniform and universal signification of scientific nomenclature. That pneumonia is a disease is a notorious fact, and so a fact of judicial cognizance. As the court takes notice of the fact, no proof of it was requisite, and no issue could be joined upon it. In support of these points the court cites a number of authorities, and modifies the judgment to $32.50.

Clinical Results of Double Castration.—In summing up the results of 111 cases of the operation for the relief of senile enlargement of the prostate, as proposed by Dr. J. William White about two years ago, the author says[2] that the theoretic objections which have been urged against the operation of double castration have been fully negatived by clinical experience, which shows that in a very large proportion of the cases (87.2 per cent.) rapid atrophy follows the operation and disappearance or great lessening in degree of long-standing cystitis (52 per cent.); and that more or less return of the vesical contractility (66 per cent.), and a return of the local conditions not very far removed from the normal (46.4 per cent.) may be expected in a considerable number of cases. The deaths have been 20 in 111 cases (18 per cent.); excluding those cases which died from uremia alone the mortality is 7.1 per cent. It may be interesting to note that the desperate cases which make up the series of deaths showed improvement of symptoms or shrinkage of the prostate before they died. Comparison with other operative procedures seems to justify the statement that, apart from the sentimental objections of aged persons on the one hand, and the real, entirely natural and very strong repugnance to the operation felt by the younger patients, castration offers a better prospect of permanent return to nearly normal conditions than does any other method of treatment.

[1] Gaz. Med. de Paris, No. 27, 1895.
[2] Annals of Surgery, July, 1895.

Fake Patent Medicine Men.—From the *Minneapolis Journal* we learn that fake patent medicine men are working the country districts in the vicinity of that city quite successfully. They sell their medicine and take the farmers' notes in payment, the notes returning for payment in a much different form from that in which they were signed. Deputy Sheriff Megaarden received a letter from C. W. W. Dow, of the Interstate Sheriffs' Association, recently, giving the following description of a man who gives his name as H. Miller and who purports to represent a Buffalo Medicine Company: "He is working among the farmers, taking their notes and discounting them. He is described as follows: Height about 5 feet 6 inches; age about 45, perhaps 50; dark hair, but bald in front and on top of head; a trifle gray; dark eyebrows; had no mustache, may have now; dark complexion; Jewish cast of features; nose slightly Roman; weight about 160; talks broken English, and claims that he can not write English—has his victim do the writing. Had on a black or brownish derby hat, dark coat and vest; laced shoes. He hires a team with a driver, and has driver witness signatures. Had three grips with him. He has operated in southern Nobles County, Minnesota, about June 6, 7 and 8. Last seen at the depot at Little Rock, Iowa." The police are warned to be on the lookout for Miller.

Failure of Emmerich's Antitoxin of Carcinoma.—The Berlin letter of the London *Lancet*, for July 13, refers to the acrimonious debate that has been had in the Berlin medical journals over Emmerich's treatment for cancer. The letter gives a brief description of the present status of the discussion, as follows:

"The article communicated by Professor Emmerich and Dr. Scholl to the *Deutsche Medicinische Wochenschrift*, which was mentioned in my letter inserted in *The Lancet* of May 4, was received here with general skepticism. That this feeling was justified is now proved by the published observations of Professor Bruns (Tübingen), and Professor Augerer (Munich). Professor Bruns was quoted by the authors as vouching for the efficacy of the treatment, but he now states that in no instance was a curative effect remarked, while in some cases the general state of the patients was very unfavorably influenced. Cardiac trouble and raising of the temperature were very frequent, and must have been due to a septic condition of the fluid. To this suggestion, Professor Emmerich answered that the antitoxin was originally aseptic and must have been spoiled by Professor Bruns or his assistants. Professor Bruns replied that the fluid was examined immediately after its arrival in the bacteriologic laboratory of the University, and numerous streptococci were found in it. Professor Augerer stated that two of his cases were attacked with real erysipelas during the antitoxin treatment. The controversy between Professor Emmerich and his opponents sometimes assumed a very personal character and continues to fill the columns of the medical papers. The general impression is that the real carcinoma antitoxin has not yet been discovered."

Not Liable for Mutilations by Post-mortem Examinations.—A widow brought suit to recover damages from the coroner who ordered, the physician who conducted and the college which furnished a room for, the post-mortem examination of her deceased husband, on account of the alleged wrongful mutilation of the body and its unlawful detention from burial when demanded for that purpose. The damage alleged to have been caused by those acts was great mental excitement and distress and bodily suffering on the part of the widow. Death occurred in the Baltimore City Hospital one day, after the man, a brakeman, had had his right leg mashed below the knee. The college in question supplied the medical and surgical service to the hospital, and the coroner who ordered the post-mortem examination and the physician who made it were connected with the college.

Judgment was given in behalf of the defendants in the trial court, and the Court of Appeals of Maryland affirms it (Young v. College of Physicians and Surgeons of Baltimore, June 18, 1895) on the ground that the post-mortem was a lawful proceeding, the coroner being required to hold inquests whenever a person is found dead and the manner and cause of death shall not already be known as accidental, or in the course of nature, and the accident preceding this man's death, and disabling him not being, in the coroner's opinion, sufficient to cause the death of a healthy person, while in the coroner's judgment and that of other professional witnesses, proper and sufficient inquiry could not be made without an autopsy If anything irregular or improper occured in the prosecution of the post-mortem, the court says that the college took no part in it. Neither did the coroner. The question regarding the charges which alleged the wanton mutilation of the body, the court holds, was fairly left to the jury in an instruction that if they believed that the medical examiner who performed the post-mortem did it at the order of the coroner, as the city examining physician, and in performing the same treated the body with ordinary decency, and did not wantonly disfigure it, he acted within the scope of his official duty and was not liable for damages.

Protection for Purchaser of Good Will.—A dentist who had carried on his business at a certain place in New York city for a period of ten or twelve years, sold out the business and good will thereof for $1,500, agreeing not to re-enter the practice of dentistry for a period of four years from date of sale within certain territory within the city. He thereafter violated the covenant by opening and maintaining a rival establishment within the restricted territory. The claim that he did not understand the nature and effect of the covenant. or that it was without consideration, the special term of the superior court of New York city said (Niles v. Fenn, decided May 25, 1895), was not borne out by the testimony. A card issued by him in December following the sale, containing his name, address, and the word "dentist," showed that he was, to an extent at least, still in the same business close by the "old stand." This presented a case calling for equitable interference, and to preserve and enforce the covenant an injunction, it was held, should be granted. Although the business sold was a professional one, the court said that the law recognized the fact that it had a good will, which might be sold as an incident of the business. If the customers declined to go to the "old stand," this would be the purchaser's misfortune, but the seller must not interfere to his prejudice.

Treatment of Foreign Bodies in the Uterus.—Albertin of Lyons, having had two cases of foreign bodies in the uterus—one a laminaria tent, the other an electrode,—has collected some data bearing thereon. All authorities except Poulet, he says, are silent on the subject. Foreign bodies may come from within—polypus, fibroma or mole calcified; fetal *débris;* or from without—the introduction of instruments for producing premature birth or abortion or for therapeutic purposes as dilatation, cauterization, replacement, etc., or for purposes of masturbation. Among the objects found are needles, catheters, wooden knitting needles and above all hairpins. From the standpoint of symptomatology there are two classes: 1, when the uterus is enlarged, as in abortion or premature delivery, by perforation or separation of the membranes—if the body is aseptic, no infectious phenomena; metroperitonitis, if it is septic. 2, when the uterus is not gravid there is often long tolerance of aseptic foreign bodies *e.g.*, large sponges mentioned by Pichevin; infectious metritis follows from septic objects; lesions of neighboring structures by propagation—salpingitis, pelvi-peritonitis, salpingo-ovaritis, and disorders of menstruation, amenorrhea and menorrhagia. The process evidently will differ when the foreign body produces a wound of the uterus—initial hemorrhage, perforation, fistula, abscess opening in the groin or perineum. The principal diagnostic elements are inquiry into the history, vaginal touch, examination per speculum and with sound, and, if need be, the use of Sims' small curette. The prognosis is variable; if the object is tolerated it is good; if septic phenomena are present it is of course, grave. As regards treatment: the diagnosis being positive and the body loose, Albertin advises immediate extraction; if it is fast, and local antisepsis is possible, expectant measures should be resorted to, awaiting spontaneous expulsion; if these are contra-indicated dilate by tents and intra-uterine irrigation; as a last resort, use either uterine dressing forceps or Sims' curette or, in exceptional cases, incision of the cervix. The strictest vaginal and uterine antisepsis must be observed before, during and after any manipulations. The patient must be kept under surveillance for some time after extraction of the body, since late septic complications may ensue.[1]

The New Anatomic Nomenclature.[2]—(Karl v. Bardeleben in *Deutsche Med. Wochensch.*, July 4, 1895.) At its ninth meeting in Basle April 17 to 20, 1895, the Anatomical Society accepted the "Nomina Anatomica," arranged by the Commission intrusted with this work, and recommends to all professional associates the use of the names included in the list.

In obedience to the request of the editor of this JOURNAL to explain the new nomenclature briefly, I note first, historically, that at the business session of the first meeting of the Anatomical Socety, in April, 1887, in Leipsic, the board of directors (at that time v. Kölliker, Gegenbaur, His, Waldeyer, K. Bardeleben) proposed the following plan: "The Anatomical Society desires to begin the regulation of a general anatomic nomenclature. . . . ." After the acceptance of this proposition the directors were commissioned to undertake the necessary preliminaries before the next meeting. After it had been proved that the directors could not carry on this business in addition to other work, a special nomenclature commission was elected at the third meeting, in Berlin, October 1889 (chairman, v. Kölliker; members, O. Hertwig, His, Kollmann, Merkel, Schwalbe, Toldt, Waldeyer, Bardeleben). This commission chose next an editor, W. Krause, and sought then to obtain the necessary funds. Beside 3,800 marks which the Society gave, over 8,000 were contributed by the Academies in Berlin, Vienna, Munich, Buda-Pesth and the Society of the Sciences in Leipsic. The commission later, at least temporarily, associated others with them: Braun, Henle, v. Kupffer, v. Mihalkovicz, Buda-Pesth; Rüdinger, Zuckerkandl, Lebouck, Ghent; Thane, London; Turner, Edinburgh; Cunningham, Dublin; Romiti, Pisa, and others. For some parts of the work, special committees were chosen: for veins and lymph vessels, Merkel, Thane, Toldt; for regions, Merkel, Rüdinger, Toldt; for syndesmiology, Toldt. Finally, a special publication committee took care that the whole work should maintain a uniform character.

Fixed limits were established for the extent of the undertaking; only the descriptive, that is, the systematic[3] and the typographical, human anatomy, and this only so far as it is the subject of macroscopic examination, should constitute the object. Secondly, it was resolved that the term

1 Rev. Int. Med. et Chir. Prat., No. 11, 1895.

2 Die anatomische Nomenclatur. Nomina anatomica. Verzeichniss der von der Commission der Anatomischen Gesellschaft festgestellten Namen, eingeleitet und im Einverständniss mit dem Redactionsausschusse erläutert von Wilhelm His. Mit 80 Abbildungen im Text und zwei Tafeln. Sep.-Abzug a Arch. f. Anat. u. Physiol. Anat. Abthlg. Suppl. Band. 1895. 183 S. Die obige Darstellung schliesst sich an die "Einleitung" von His an.

3 The two expressions, "descriptive" and "systematic," are frequently applied erroneously, as having the same significance, whereas the former is the more comprehensive.

ould be in one language, that is, Latin designations only, d to permit the individual nations to translate these entually into their languages. The following principles ere recognized in applying the names: each part shall have t one name. The names shall be Latin and etymologically rrect. They shall be as short and simple as possible. They all be mere tokens for the memory, and not contain descriptions or interpretations. Connected names shall be as r as possible analogously framed (for instance, femur, A. moralis: V. femoralis; N. femoralis). Too firmly fixed mes have made exceptions necessary, so M. sternocleidoastoideus has remained, Valv. ceceespidalis is to be used gether with Valv. mitralis, pyramis and pars petrosa, vola d palma, nates and clunis. As regards proper names, a mpromise has been decided upon; that is, many remain, hers not. For some parts the proper names have been mporarily retained in addition to the other names, and e final decision for the time relinquished.

One very weighty question was, to what extent attention ould be paid to the anatomic nomenclature of the specialies in medicine, psychiatry and neurology, the aurists, ophalmologists, laryngologists and others. Here the decision as restrictive, that the specialists had been forced to the eation of their nomenclature through necessity and that natomy, as a collective science, has to follow this. The tudent, who goes out from his anatomy into the clinics, can emand that he receive those ideas and the language which e needs in his more advanced studies, and that it should ot be necessary for him to learn a new anatomy in place of n antiquated one.

The original plan, to proceed in a purely conservative way nd to select from the already existing designations the ost suitable, could not be adhered to. Not only antiquated xpressions, but also such as are vague and used with varius meanings must be excluded; or, on the other hand, they ust be clearly fixed in their significance. The latter was nly possible many times by specially devised means, where terature was inadequate. The writer chooses only certain xamples from single headings in systematic anatomy in lustration of what has been said:

Osteologia. Scapula:

Facies costalis, Lineæ musculares, Fossa subscapularis, acies dorsalis, Spina scapulæ, Fossa supraspinata, Fossa nfraspinata, Acromion, Facies articularis acromii, Margo ertebralis, Angulus inferior, Angulus lateralis, Angulus edialis, Cavitas glenoidalis, Collum scapulæ, Incisura colli capulæ, Tuberositas infraglenoidalis, Tuberositas supraglenoidalis, Incisura scapulæ, Processus coracoideus, Margo xillaris, Margo superior.

Splanchnologia. Pulmo:

Basis pulmonis, Apex pulmonis, Sulcus subclavius, Facies ostalis, Facies mediastinalis, Facies diaphragmatica, Margo nterior, Margo inferior, Hilus pulmonis, Radix pulmonis, ncisura cardiaca, Lobus superior, medius, inferior, Incisura nterlobaris, Lobuli pulmonum, Rami bronchiales, Bronchioli, Bronchioli respiratorii, Ductuli alveolares, Alveoli pulmonum, Lymphoglandulæ bronchiales, Noduli lymphatici ronchiales, Lymphoglandulæ pulmonales.

Angiologia. A. radialis:

A. recurrens radialis, Rami musculares, Ramus carpeus olaris, Ramus volaris superficialis, Ramus carpeus dorsalis, ete carpi dorsale, A metacarpeæ dorsales, Aa. digitales orsales, A. princeps pollicis, Aa. volaris indicis radialis, rcus volaris profundus, Aa. metacarpeæ volares, Rami erforantes.

Neurologia. N. medianus:

Rami musculares, N. interosseus (antibrachii) volaris, amus palmaris n. mediani, Ramus anastomoticus cum n. lnari, Nn. digitales volares communes, Nn. digitales volares roprii.

Organa sensuum. Apparatus lacrimalis:

Glandula lacrimalis superior, Glandula lacrimalis inferior Glandulæ lacrimales accessoriæ), Ductuli excretorii (Glandla lacrimalis), Rivus lacrimalis, Lacus lacrimalis, Puncta crimalia, Ductus lacrimales, Papillæ lacrimales, Ampulla uctus lacrimalis, Saccus lacrimalis, Fornix sacci lacrimalis, uctus nasolacrimalis, Plica lacrimalis (Hasneri), Lacrimæ.

Aus der topographischen Anatomie:

Regiones colli:

R. colli anterior; R. submentalis, hyoidea, subhyoidea, ryngea, thyreoidea, suprasternalis, Fossa jugularis, R. subaxillaris, Fossa carotica, R. sternocleidomastoidea, Fossa upraclavicularis minor; R. colli lateralis: Fossa supraclavicularis major, Trigonum omoclaviculare; R. colli posterior: R. nuchæ, Fovea nuchæ.

We will now hope that the new anatomic nomenclature, called to life with the expenditure of so much toil, time and money may be a common source of agreement not only for anatomists, for investigators and teachers of different nations and languages with one another, but also between teachers and pupils, between anatomists and physiologists, pathologists and practitioners, also between theory and practice! Then will the long and toilsome work of the commission not have been in vain.

Hospital Notes.

The Long Island State Hospital for the Insane is the name under which the two asylums of Kings County, in which Brooklyn is located, will hereafter be known. These asylums, located in Flatbush, and King's Park, Suffolk County, have passed into control of the State by virtue of an Act of the Legislature of New York; but the new board of managers to be appointed by Governor Morton, will not take formal possession until October 1. For the purpose of carrying out the provisions of the Act, the county authorities will, under direction of the board, execute a quit-claim deed to the State, in consideration of the sum of $1. The asylum property in Flatbush will only be leased to the State for a period of five years, with the privilege of extending the time from year to year, not exceeding five years additional. At the end of the leasehold, the old asylum buildings will be converted into general hospital purposes.

The transfer of the insane asylum to the State will save the county an annual expense of about $300,000.

The new hospital pouches have been issued to the Regimental Hospital Corps of the Connecticut National Guard. Each pouch contains the following: 2 roller bandages, 2 ounces boracic wool, 2 ounces patent lint, 1 Esmarch tourniquet, 1 first aid packet, 1 medicine glass measure, 1 pus basin, 2 small sponges, 4 ounce bottle chloroform, 1 ounce bottle aromatic spirits of ammonia, book of diagnosis tags, 1 ounce carbolated vaselin, 1 No. 8 catheter, pair scissors, paper sorted pins, one-half dozen assorted safety pins. One pouch to each corps, to be carried by the acting hospital steward, contains the following articles in addition: medicine case containing tablets and a hypodermic syringe with morphin, and cocain tablets. The medicine case contains the following in tablet form: bichlorid, acetanilid, brown mixture, quinin pills, opium and camphor pills, cathartic pills. The pouches are made of brown canvas and weigh about five pounds.——St. Joseph's Hospital at Providence, R. I., is to be improved by the addition of a laundry to cost $2,000.——The Rev. William L. Bull and his mother, Sara R. Bull, of Whitford, R. I., have given $8,000 to the management of the Chester, Pa., County Hospital, to be used in erecting a memorial building to Mrs. Bull's daughter, Annie.——The report of the German Hospital for the period from June 20 to July 23 shows the number of patients on June 20, 136; admitted since that time, 226; discharged, 205; deceased, 18; remaining in hospital, 139. The number of cases treated in the dispensary was 2,827.——The house physician of St Luke's Hospital at Jacksonville, Fla., announced on August 1 that no more patients would be received at the hospital. The closing of this charitable institution is caused by lack of adequate financial support by the citizens of that city, and it is to be hoped that this condition of affairs is but temporary.

Washington Notes.

Weekly Report of the Health Department.—The report of the Health Officer for the week ended July 27 is as follows: number of deaths (still-births not included): white, 60; colored, 47; total, 107. There was improvement in the health of the city last week. The number of deaths as reported at the Health Department was 107, as against 159 in the preceding week. The death rate fell 33 per cent., reach-

ing 20.5 as compared with the previous report of 30.5. The deaths of children under 5 years of age declined from 70 to 53. It is thus seemingly indicated that the intensity of the annual rise in the mortality from summer maladies reached its climax last week, and the outlook for a gradual improvement during the balance of the summer may be considered favorable. There was but one death from diphtheria and none from scarlet fever nor from any of the dangerous contagious diseases reported, while there were four deaths from typhoid fever last week, and four from the same disease in the former week.

THE CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—The annual report of the Central Dispensary and Emergency Hospital for 1894 is being distributed. It contains, beside the record of its extensive work for the past year, an interesting history of the institution from its organization.

FIRE ESCAPES OR NO LICENSE.—As the only way of reaching hotel keepers who do not comply with the regulations of the fire-escape law, the Commissioners have decided to refuse a license to all proprietors who decline to provide fire escapes for their establishments after sixty days' notice. The enforcement of this law will prevent a repetition of the preventable loss of life and limb which has so frequently shocked the community recently. The law is very perfectly drawn and is a good and necessary one.

DIED FROM SWALLOWING GLASS.—A 13-year-old colored boy died last week under circumstances which caused the parents to suspect poisoning. The boy said he had been given beer to drink which contained arsenic or strychnin. Upon investigation by the coroner no trace of poison could be found. A perforation of the intestines by a piece of glass and resulting peritonitis was discovered. The glass is supposed to have been in the beer he drank.

Louisville Notes.

PERSONALS.—Drs. Henry E. Tuley and S. G. Dabney have returned from a summer vacation. Drs. J. M. Mathews, J. B. Marvin and J. A. Octerlony are still absent.

UNIVERSITY OF LOUISVILLE.—The Medical Department recently elected Prof. H. A. Cottell to succeed Dr. E. R. Palmer in the chair of physiology. Dr. H. M. Goodman was elected professor of chemistry to succeed Dr. Cottell.

MILK.—Much commendable work is being done by Health Officer White, in his endeavor to obtain pure milk for Louisville. The question of milk supply of cities was first brought to the notice of the local profession in a paper read by Dr. Tuley, before the Louisville Academy of Medicine; a paper was later read by Dr. J. A. Larrabee and a general discussion had upon the question of legislation. A committee was appointed from the Academy to draft suitable resolutions recommending to the local council the passage of a new ordinance, creating a milk inspector, and new laws under which he could work. The committee has met with no encouragement from the Mayor who states he will oppose any ordinance in which a new office is to be created. Dr. White has been doing excellent work under the present inadequate laws, and has secured samples of milk from dairymen, the offending ones being arrested, a fine of $50 being imposed upon one, and $25 each upon two others, for watering and otherwise tampering with the milk. One dairyman in his defense very ingeniously said that he added two gallons of water to every twenty gallons of milk; in the first place to cool it, and it the second to prevent its becoming "stringy." He was fined.

TEXAS (SPLENIC) FEVER.—The cattle at a number of points near Louisville recently became afflicted with this disease, and indications pointing to a severe and disastrous epidemic, the State Board of Health appointed as State Veterinarian, Dr. F. T. Eisenman who has been making vigorous efforts to stamp out the disease. In this he has been nearly successful, as only isolated cases are heard of from time to time.

MEDICAL LEGISLATION.—The board of aldermen have passed the contagious disease act and it will shortly become a law. It provides for the placarding of houses in which there is diphtheria or scarlet fever; quarantining of other children from school; proper isolation of children after convalescence; in case of death, early and private funerals, the body to be buried in a sealed casket. It has been decided to erect urinals over the sewer catch basins at the street corners for the G. A. R. Encampment.

DEATH REPORT.—For the week past there was a total of 55 deaths; of these 24 were male, 31 female; 37 white, 18 colored; 34 single, 16 married, 5 not stated. For the month of July there were only 294 deaths, while there were 333 deaths in July 1894. Annual death rate per 1,000, 15. White death rate per 1,000, 164,261 population, 14. Colored death rate per 1,000, 35,739 population, 23. For month, white, .013; for month, colored, .022.

Samples of milk examined, 82; diseased cattle killed, 48; diseased cattle condemned and sent to the country, 85.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from July 27, 1895, to August 2, 1895.

Capt. W. FITZHUGH CARTER, Asst. Surgeon U. S. A., is granted leave of absence for one month.

Major C. K. WINNE, leave of absence granted for seven days, is hereby extended twenty-three days.

Capt. JUNIUS L. POWELL, Asst. Surgeon U. S. A., is hereby granted leave of absence for one month, with permission to apply for an extension of one month.

Marine-Hospital Changes. Official list of changes of stations and duties of medical officers of the U. S. Marine-Hospital Service, for the fifteen days ended July 31, 1895.

Surgeon W. H. H. HUTTON, to proceed from Washington, D. C., to Pensacola, Fla., on special duty, July 18, 1895.

Surgeon J. B. HAMILTON, granted leave of absence for three days, July 30, 1895.

Surgeon W. A. WHEELER, detailed as chairman of board for physical examination of candidate, revenue cutter service, July 23, 1895.

P. A. Surgeon D. A. CARMICHAEL, detailed to make physical examination of candidate, revenue cutter service, July 26, 1895.

P. A. Surgeon L. L. WILLIAMS, granted leave of absence for ten days, July 20, 1895.

P. A. Surgeon G. M. MAGRUDER, to proceed from Galveston, Texas, to New Orleans, La., for temporary duty, July 27, 1895. Order to proceed to New Orleans suspended, and directed to proceed to Eagle Pass, Texas, for special duty, July 31, 1895.

P. A. Surgeon J. C. PERRY, granted leave of absence for twenty days, July 16, 1895.

Asst. Surgeon E. H. SPRAGUE, to proceed from Mobile, Ala., to Key West, Fla., for temporary duty, upon completion of which to rejoin station at Mobile, July 18, 1895.

Asst. Surgeon A. R. THOMAS, to proceed from Buffalo, N. Y., to New Orleans, La., for temporary duty, July 20, 1895.

Asst. Surgeon H. S. CUMMINGS, detailed as recorder of board for physical examination of candidate, revenue cutter service, July 23, 1895.

Asst. Surgeon J. B. GREENE, to report at Bureau for temporary duty, July 16, 1895.

LETTERS RECEIVED.

Allen, Dudley P., Cleveland, Ohio; Axtell, E. R., Denver, Colo.; Atkinson, W. B., Philadelphia, Pa.

Burr, C. B., Flint, Mich.; Barrie, Geo., Washington, D. C.; Brown, E. M., Chicago, Ill.

Chandler, H. S., New York, N. Y.

Doliber-Goodale Co., Boston, Mass.; Doyle, J. T., Green Bay, Wis.

Frank, Chas. T., Detroit, Mich.; Feick Bros., Pittsburg, Pa.

Griffith, L. M., Bristol, England.

Holleman, P. W., Roseland, Ill.; Hummel, A. L., Philadelphia, Pa.

Isbester, R. T., Chicago Ill.

Knox, C. S., Superior, Wis.; Kinyoun, J. J., Washington, D. C.; Kierle, N. G., Baltimore, Md.

Latta, S. W., Philadelphia, Pa.; Lower, M. O., North Manchester, Ind.; Lord & Thomas, Chicago, Ill.

Maas, F., Detroit, Mich.; McNitt, G. F., Racine, Wis.; McEnroe, J. F., Schenectady, N. Y.; McKie, Thos. J., Woodlawn, S. C.

Newman, H. P., Chicago, Ill., (2); Niven, J., Staples, Minn.

Post-Graduate Medical School, Chicago, Ill.; Parke, Davis & Co., Detroit, Mich., (2); Pring, Ernest, San Francisco, Cal.

Raymond, J. H., Brooklyn, N. Y.; Rosenthal, Jacob, Chicago, Ill.; Rubber Tire Wheel Co., Chicago, Ill.; Russell, L. B., Goodwin, Ill.; Rochelle, W. F., Jackson, Tenn.

Sander, Enno M. W. Co., St. Louis, Mo.; Sweemer, Wm., Milwaukee, Wis.; Straw, J. R., Ashland, Wis; Spalding, W. C., New York, N. Y., (2); Shearer, J. Y., Sinking Springs, Pa.; Schering & Glatz, New York, N. Y.; Sanitarium The, Battle Creek, Mich., (2).

Trowbridge, L. S., Detroit, Mich.; Totman, D. M., Syracuse, N. Y.; Taylor, W. S., Livermore, Cal.

Warner, W. R. & Co., Philadelphia, Pa.; Woodbridge, L. D., Williamstown, Mass.